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HIGH-LOADING LOW-SPEED FAN STUDY IV. DATA AND PERFORMANCE WITH REDESIGN STATOR AND INCLUDING A ROTOR TIP CASING TREATMENT

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16. Abstract

A single-stage fan with a rotor tip speed of 1000 ft/sec (304.8 m/sec) and a hub-to-tip ratio of 0.392 was retested with a redesigned stator. Tests were conducted with uniform inlet,tip-radial, hub-radial, and circumferential inlet distortions. With uniform inlet flow, stall margin was improved 12 percentage points above that with the original stator.

The fan demonstrated an efficiency of 0.883 and a stall margin of 15 percent at a pressure ratio of 1.478 and a specific flow of 41.17 lb/sec/ft^2. Tests were also made with a redesigned casing treatment consisting of skewed slots over the rotor blade tips. This casing treatment gave a 7 percentage point improvement in stall margin when tested with tip radial distortion (when the rotor tip initiated stall).

Noise measurements at the fan inlet and exit indicate no effect from closing the stator 10 degrees, nor were there measurable effects from adding skewed slots over the blade tips.

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FOREWORD

This report was prepared by the Pratt & Whitney Aircraft Division of United Aircraft Corporation, East Hartford, Connecticut, to present data and performance of a fan with a redesigned stator and with and without a rotor tip casing treatment, under Contract NAS3-10483, High-Loading, Low-Speed Fan Study.

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I. SUMMARY

Tests were conducted to determine the detailed aerodynamic performance and noise characteristics of a highly-loaded, single-stage fan composed of a low-speed (1000 ft/sec), slotted rotor and a stator redesigned with lower loadings (diffusion factor less than 0.5). Earlier tests of this fan had indicated that stall margin could be improved by redesigning the stator for lower loadings. Loadings were reduced by increasing flowpath convergence across the stator and by allowing an increase in stator exit Mach number to just under 0.6. The stator redesign also included a reduction in aspect ratio from 3.67 to 2.46, an increase in blade solidity of seven percent, and a reduction in the number of blades from 64 to 50. Tests were conducted with uniform inlet, hub-radial, tip-radial, and circumferentially distorted inlet flow with a solid case and with skewed slots casing treatment over the rotor tip. Stator blades were adjustable, permitting optimization of performance. Acoustic measurements were made in the inlet plenum and downstream of the stator blades for uniform inlet flow at two stator-setting angles, with and without casing treatment.

Stage optimization tests were conducted with uniform inlet flow with the stator angles set at nominal (design), 5 degrees open, 5 degress closed, and 10 degrees closed. (An open setting angle results in increased air incidence angle compared to the nominal setting.) The nominal setting angle provided the best combination of high stage-efficiency and good stall-margin. Additional performance tests were conducted with the stator 10 degrees closed to obtain a wider range of rotor data.

With the stator at its optimum (nominal) setting angle, a design-speed stage pressure ratio of 1.478 and an efficiency of 88.3 percent were achieved at the design flow of 180 lb/sec. A fifteen percent stall margin was demonstrated at design speed based on a design flow operating point at 180 lb/sec. The addition of rotor tip treatment had no effect on stall margin when the stage was operated at design speed and uniform inlet flow but caused a two percentage point drop in the peak efficiency of the stage.

Tip-radial distortion ($\Delta P/P_{max}$ = 14 percent covering 40 percent annulus area) caused a loss of 11 percentage points in stall margin at 95 percent of design speed when the rotor had a solid casing. Rotor tip casing treatment recovered seven of the eleven percentage points in stall margin. With distorted inlet flows, the highest speed tested was 95 percent of design.

Hub-radial distortion ($\Delta P/P_{max}$ = 10 percent covering 40 percent annulus area) at 95 percent of design speed with solid rotor tip casing increased stall-margin about eight percentage points but decreased pressure ratio three percent compared with uniform inlet and solid rotor tip casing. The addition of rotor tip casing treatment further increased stall-margin for a total increase of 18 percentage points over uniform inlet with solid rotor tip casing.

Circumferential distortion ($\Delta P/P_{max}$ = 14 percent covering 90 degrees of inlet annulus area) had little effect on performance at 95 percent of design speed with or without casing treatment. However, rotor tip casing treatment provided an eight percentage point improvement in stall-margin at 80 and 90 percent of design speed.

Although casing treatment over the rotor tip increased stage tolerance to all three types of inlet flow distortion, there were small decreases in adiabatic efficiency.

Closing the stator setting angle 10 degrees from its nominal position did not appear to change the level of noise. Comparisons were somewhat complicated by the differences in operating condition at wide open throttle with the two stator-settings. The addition of skewed slots casing treatment over the rotor tips had no measureable effect upon fan inlet noise.

II. INTRODUCTION

The object of this program was to determine the aerodynamic performance characteristics of a highly loaded, low-speed fan stage that would be applicable to a low-noise engine. Previous tests of this fan with solid airfoils [ref. 1] showed an encouragingly high overall efficiency but the flow range (i.e., stall margin) was poor. Tests with slotted blading [ref. 2] showed slight improvements in stage efficiency but no improvement in stall margin. Tests with vortex generators on the outer case forward of the rotor and with a honeycomb structured rotor tip casing treatment were not completely successful in improving the stall margin or tolerance to tip-radial distortions without severe penalties in efficiency with uniform inlet flow [ref. 2]. These tests [ref. 1 & 2] proved that the stator hub was critically loaded and causing stall. Although stator hub slit suction had improved this situation somewhat, indications were that a redesigned stator would be more effective in improving stall-margin. Therefore, the program was extended to include redesigning the stator and adjoining flowpath and retesting the fan stage. The redesigned stator blades were made adjustable to permit a more nearly complete evaluation of rotor and rotor-stator range potential.

Various rotor tip casing treatments have been successful in improving the tolerance of stages to inlet flow distortions [ref. 3]. Skewed slots casing treatment has proven to be very good from the standpoint of increasing stall-margin with only small penalties in efficiency for operation with uniform inlet flow. Therefore, a skewed slot casing treatment insert was fabricated and tested as part of this program.

Noise design criteria were compromised only slightly by the redesigned stator. The axial spacing between the rotor and stator was decreased from 2.0 to 1.88 rotor-hub-chord lengths. The number of stator vanes was reduced from sixteen plus twice the number of rotor blades to two plus twice the number of rotor blades, a vane-to-blade-number ratio which still satisfied noise cutoff theory [ref. 4]. Further criteria used for the basic fan design are reported in reference 5.

This report presents the results obtained during testing of a highly-loaded, low-tip speed fan stage with redesigned stator. The testing included running both with and without rotor tip casing treatment (skewed slots) and with uniform inlet, tip-radial, hub-radial, and circumferential inlet distortion. Stator setting angle was also evaluated. Details of the stator and casing treatment design are given. Noise data are presented for the solid rotor tip case and for the skewed slots rotor tip case; both these cases were tested with uniform inlet flow.

III. APPARATUS AND PROCEDURES

A. TEST COMPRESSOR

1. Overall Design Description

Tests with unslotted and slotted blades [ref. 1 & 2] had shown that stator stall severely limited the fan stall-margin (defined in Appendix A). The stator (Figure 1) used in the test reported herein was redesigned with more flowpath convergence and a higher solidity to reduce loading and with a lower aspect ratio to improve loading capability. Aerodynamic conditions for the redesigned stator were calculated using rotor performance data from the slotted blading test [ref. 2]. The rotor blades (Figure 2) used were those of reference 2. Provisions were made for varying the stator angle setting, γ°, (defined in Appendix A) to optimize fan performance and to provide additional stator stall range capability for rotor tip casing treatment tests.

A schematic of the fan stage mounted in the test rig is shown in Figure 3. This single-stage fan was originally designed with a tip speed of 1000 ft/sec, a hub-to-tip ratio of 0.39, a corrected flow per unit annulus area at the rotor leading edge of 42 lb/sec/ft^2, and a total corrected flow of 185 lb/sec [ref. 5]. The original-design rotor pressure ratio was 1.54 and the overall stage pressure ratio was 1.50. A constant outer diameter was chosen to permit maximum flow convergence at the rotor hub, thereby providing a maximum rotor-exit wheel speed. Designed air turning at the rotor hub was 72.6 degrees, which resulted in a rotor exit relative air angle of -39.6 degrees.

Based on the experimental data of reference 2, the stage design point for the new stator was selected at a total corrected flow of 179.7 lb/sec (41.17 lb/sec/ft^2), a rotor pressure ratio of 1.523, and an overall stage pressure ratio of 1.478. The running rotor tip clearance was 0.041 inch at design speed with the solid outer case and 0.036 inch with tip casing treatment. The stator hub and tip endwall clearances were both 0.038 inch at the leading edge during the monimal stator-angle configurations. These clearances were necessary to provide for the various stator-setting angles.

2. Redesign Stator

Design parameters of the original and redesign stators are compared in Table 1.

TABLE I

DESIGN PARAMETER COMPARISON FOR ORIGINAL AND REDESIGN STATORS

	ORIGINAL STATOR	REDESIGN STATOR
exit-annulus-area/inlet-annulus-area	.953	.914
hub solidity	2.17	2.33
aspect ratio (average vane length to hub aerodynamic chord)	3.67	2.46
aerodynamic hub chord	1.83	2.60
number of vanes	64	50

A reduction in stator aerodynamic loadings was achieved primarily by designing an additional four percent annulus convergence into the stator hub flowpath and allowing the stator exit Mach numbers to reach 0.6 near the hub. The revised and original flowpaths are shown in Figure 4. The number of stator vanes was reduced from 64 to 50 to obtain a lower aspect ratio without exceeding noise guidelines. The reduced vane-to-blade-number ratio was still sufficient to prevent propogation of the fundamental blade-passing-frequency noise, according to the cutoff theory [ref. 4]. Low aspect ratio (increased chord length) blading has demonstrated increased endwall loading capability in cascades [ref. 6] and increased stall-margin in compressor tests [ref. 7]. Solidity was increased from 2.17 to 2.33 at the hub to provide additional reduction in loading. The increased solidity had much less effect on loading than the increased flowpath convergence. The constant annulus area section between the rotor and stator (Figure 4) was shortened 0.74 inch to accommodate the longer chord stator. The resulting rotor-stator spacing was 1.88 rotor-hub-chord lengths. Streamline calculations for the original and redesign flowpaths showed only very minor changes in flow distributions (e.g., maximum velocity change at the stator inlet was 10 ft/sec). This small shift in flow should not have an effect on rotor performance. The stator trailing edge axial location was kept the same as the original design to permit use of existing outer flowpath casing while preserving the original spacing between the stator blades and the rear bearing support struts.

Velocity vector diagrams used to redesign the stator airfoils were obtained from a flowfield calculation containing the modified flowpath and the aerodynamic performance from a particular data point with the slotted rotor [ref. 2]. Calculations were based upon radial distributions of rotor pressure and temperature ratios from the selected data point at 100 percent design speed having a corrected flow of 179.7 lb/sec, a rotor pressure ratio of 1.523, and a rotor efficiency of 93.2 percent (see Appendix D). This point was 0.5 percentage point lower in stage efficiency and three lb/sec higher in flow than the maximum efficiency point at near-stall, but it was chosen because its higher flow rate would be expected to provide additional stall-margin. Stator losses from this data point were modified to account for the reduction in predictated aerodynamic loading (diffusion factor), the increase in vane solidity, and for effects of stator hub slit suction which was used with the original stator but not with the redesign stator.

A correlation of loss parameter versus diffusion factor (Figure 5-A) was used to make the adjustment for aerodynamic loading. This correlation represents data from transonic stator tests [ref. 1 & 8]. The measured midspan (20 to 80 percent) total loss parameters from the selected

data point were reduced by the ratio of loss parameters determined from the Figure 5-A, using the diffusion factor levels from both the selected data point and the predicted lower loadings of the redesigned stator. The endwalls were treated similarly except that the adjustment was made to the measured total loss parameter minus the endwall loss parameter increments (Figure 5-B) since these increments did not appear to be a function of loading. Following these adjustment, endwall loss parameter increments were readded, where applicable, and the total loss coefficients, $\bar{\omega}$, were calculated using the solidity values of the redesigned stator. An additional adjustment, increasing the losses in the hub region (5, 10, 15, and 30 percent span), was made to account for the absence of hub slit suction. These adjustments were based upon the difference in loss coefficients from tests with slit suction and tests with the slots covered [ref. 1]; referenced data at design speed near the design pressure ratio were used. The estimated tip-losses were also reduced slightly to reflect lower losses anticipated using DCA airfoil sections in lieu of the MCA sections used previously. Spanwise distributions of stator loss coefficient, showing the various adjustments made to the measured test results, are shown in Figure 5-C.

Blockage factors, $\overline{K}$, were used to account for boundary layers on casing walls and the blockage of the stator wake. The continuity equation using $\overline{K}$ and the equation used to calculate $\overline{K}$ for the unmixed stator wake are given in Appendix A. The spanwise distributions of $\overline{K}$ for calculating stations at rotor and stator leading and trailing edges are shown in Figure 6. The same $\overline{K}$ values were used in the analysis of the slotted rotor and stator tests [ref. 2].

The entire process of design involved an iteration in which blade losses, loadings, and velocity vectors were involved. The selection of blade losses affected the calculated velocity vectors which determined blade loadings; blade loadings in turn affected loss estimates. The cycle was repeated until satisfactory agreement was reached. The resulting radial distributions of meridional velocities, aerodynamic stator loadings, stator inlet and exit Mach numbers, and inlet air angle are shown in Figures 7, 8, 9, and 10 respectively; comparisons with the original design are also shown. The most significant results of the redesign was the reduction in stator D-factor from 0.61 to 0.47 at five percent span from the hub.

The airfoil sections of the redesign stator were basically miltiple-circular-arc (MCA). Spanwise distributions of front chord, front camber, and location of maximum thickness were selected to give low curvature entrance regions for high Mach number hub sections, fairing smoothly to nearly a double-circular-arc (DCA) airfoil for the lower Mach number region at the tip. This transition from MCA to DCA is represented in Figure 11 by a curve of the camber distribution parameter as a function of percent span. The camber distribution parameter, τ, is defined as the ratio of the mean-line radius of curvature of the DCA airfoil to the radius of curvature of the MCA front section. This ratio describes an MCA airfoil relative to a DCA airfoil with the same total camber and chord and equals unity when the MCA and DCA airfoils have identical mean camber lines. DCA (nearly) tip sections were chosen based on data which showed that this type of section has lower loss than MCA sections with low cambered entrance regions when inlet Mach numbers drop below 0.7 [ref. 9].

Transition between front and rear chord sections was set at the covered channel entrance point on the suction surface for the hub sections and at approximately 50 percent chord for the tip sections. The axially projected transition location of the stator is shown in Figure 12.

Maximum-thickness to chord ratio varies linearly from 0.041 at the hub to 0.072 at the tip (Figure 13-A); this is similar to the original design which had demonstrated mechanical integrity and reasonable losses. Near the hub, airfoil section maximum thickness was located at 56 percent of chord (Figure 13-B) to provide the minimum leading edge wedge angle without creating a cusp shape in the forward portion of the airfoil.

Incidence angle at the hub was set at near zero degrees to the suction surface, based on minimum loss data from reference 9. Tip incidence angle was set at minus 6.1 degrees based on Pratt & Whitney Aircraft's correlation of DCA airfoil cascade data. Figure 14 shows the spanwise distributions of incidence angles for the redesign stator. The "hump" in the distribution of the incidence angle near the tip existed because the stator-redesign inlet air angle, taken from the selected data point with 179.7 lb/sec flow [ref. 2], had a corresponding variation (Figure 10), but the selected distribution of suction surface and mean camber-line metal angle was smooth (Figure 15). Stator deviation angles were established using Pratt & Whitney Aircraft's cascade turning correlation with a small adjustment to reflect data from previous slotted-tests [ref. 2]. Figure 16-A shows the predicted deviation angles for the redesign and the original stators. Figure 16-B shows the difference between the predicted deviation and a form of Carter's rule which considers the location of maximum camber [ref. 5]. Stator discharge flow was designed to be axial with the nominal stator-setting.

The spanwise distribution of minimum (throat) channel area to critical area, (A/A*) min., is presented in Figure 17. Channel distributions of A/A*, Figure 18, showed that the minimum area occured at the channel entrance for all spanwise locations. Spanwise distribution of (A/A*) min. (Figure 17) was controlled by leading edge incidence and front camber selection.

At the hub, (A/A*) min. was selected to provide additional stall range compared to the original design. Potential-flow studies of the redesigned stator hub (method described in reference 10) showed that the critical channel-areas, (A/A*) min., would cause high local velocities near the channel entrance on both the pressure and suction surfaces. These velocities were reduced in the stator redesign by providing additional front camber. The calculated velocity distribution over the airfoil surface at 10 percent span from the hub are compared for the original and redesigned stator blade in Figure 19. The reduced suction surface velocity gradient of the redesigned stator, compared with the original stator, should slow the boundary layer growth and delay stall to lower values of airflow.

At the tip, (A/A*) min. was the result of selecting near-DCA sections and incidence angles from cascade data as previously described. The distribution of (A/A*) min. from hub to tip (Figure 17) was guided by a previous correlation with stator inlet Mach number [ref. 9] which was based on minimum loss and not optimum stall-range.

Stator geometry on design conical surfaces is summarized in Appendix B. Stator-vane metal angles and solidities for the nine streamlines on which measurements were made are listed in Table II. For manufacturing purposes, the airfoil sections were redefined on planes normal to a radial stacking line. The resulting airfoil coordinates are given in Appendix C.

TABLE II

STATOR VANE REDESIGN VALUES
(Stations 11 and 12 of Figure 28)

% Span From Hub†	Diameter at Leading Edge (in.) (Station 11)	Diameter at Trailing Edge (in.) (Station 12)	Mean Leading Edge Metal Angle β^*_{11} (Deg.)	Mean Trailing Edge Metal Angle β^*_{12} (Deg.)	Suction Surface Leading Edge Metal Angle β^*_{s11} Deg.)	Shock Angle β^*_{sh} (Deg.)	Solidity σ
5	17.95	19.37	52.73	-16.40	55.25	45.34	2.24
10	18.66	19.91	49.62	-16.26	52.29	43.00	2.17
15	19.36	20.48	46.76	-15.68	49.66	40.51	2.09
30	21.44	22.27	40.20	-11.59	43.85	34.44	1.90
50	24.19	24.67	35.84	- 8.01	40.46	28.05	1.69
70	26.93	27.19	33.03	- 9.07	38.66	24.65	1.52
85	28.97	29.12	32.98	-11.18	39.36	23.13	1.41
90	29.69	29.76	33.78	-11.41	40.35	23.07	1.37
95	30.32	30.40	34.66	-11.61	41.41	23.02	1.34

† Data are for points along design streamlines which pass the rotor blade trailing edge at the specified span locations.

3. Rotor

The slotted rotor (Figure 2) whose test results were reported in reference 2 was used for these tests. The blade aspect ratio was 1.92 and was based on the average blade length of 8.6 inches and the aerodynamic root chord. The rotor inlet hub-to-tip ratio was 0.392. Rotor blade metal angles and solidities are shown in Table III for the nine streamlines at which blade element data are reported. Details of the unslotted multiple-circular-arc design were reported in reference 5. The two airfoil slots located in the outer section of the blade were designed to reduce endwall losses and to improve rotor stall range. The slot design was reported in reference 2.

4. Rotor Tip Casing Treatment

A rotor tip casing treatment, similar to the skewed slots No. 2 configuration used successfully in reference 3, was used for these tests. Figure 20 shows a photograph of the casing treatment, and in Figure 21 there is a sketch which shows dimensions. The depth of the skewed slots (approximately 0.31 inch radially) was approximately equal to the No. 2 configuration of reference 3. The slots covered the middle 60 percent of the blade tip chord and were partitioned at the center. Each slot was 1/8 inch wide and separated by a 1/16 inch land. Slots were skewed (slanted) 60 degrees off radial into the direction of rotor rotation.

TABLE III

ROTOR BLADE DESIGN VALUES
(Stations 5 and 6 of Figure 28)

% Span From Hub †	Diameter at Leading Edge (in.) (Station 5)	Diameter at Trailing Edge (in.) (Station 6)	Mean Leading Edge Metal Angle, $\beta^{*\prime}_5$ (Deg.)	Mean Trailing Edge Metal Angle, $\beta^{*\prime}_6$ (Deg.)	Suction Surface Leading Edge Metal Angle $\beta^{*\prime}_{s5}$ (Deg.)	Shock Angle $\beta^{*\prime}_{sh}$ (Deg.)	Solidity σ
5	13.12	16.03	34.17	-36.78	41.08	27.18	2.43
10	14.10	16.79	35.01	-31.13	41.66	28.44	2.29
15	15.17	17.58	36.17	-26.88	42.46	29.31	2.16
30	18.28	19.91	39.54	-13.70	45.23	32.64	1.90
50	22.19	23.09	43.57	4.53	48.58	38.14	1.69
70	25.88	26.26	46.96	20.02	51.19	43.54	1.53
85	28.45	28.61	49.58	30.03	53.28	46.56	1.44
90	29.32	29.41	50.56	32.29	54.09	47.69	1.41
95	30.15	30.18	51.58	34.15	54.97	48.69	1.39

†Data are for points along design streamlines which pass the rotor blade trailing edge at the specified span locations.

B. TEST FACILITY

The test program was carried out in the sea level test stand shown schematically in Figure 22. The stand was equipped with a gas-turbine drive engine using a 2.1:1 gearbox to provide the optimum speed-range capability. The entering airflow was measured through a calibrated nozzle. From this nozzle, the air flowed through a 72-foot straight section of a 42-inch diameter pipe to a 90-inch diameter inlet plenum. A wire-mesh screen was located midway through the plenum to provide uniform pressure distribution to the test compressor. Compressor discharge was exhausted into a toroidal collector and into a six-foot diameter stack. A six-foot diameter valve in the exhaust stack and two smaller valves in the bypass line provided accurate control of the back pressure to the compressor.

Inlet distortion patterns were created by overlaying screens of various mesh sizes to produce the desired pressure drop. The screens were mounted on a supporting one-inch mesh base-screen (Figure 23). The screens used for tip-radial, hub-radial, and circumferential distortion are shown on Figure 24. The screen used for tip-radial distortion was the same as used in previous tests [ref. 1 & 2] and covered the outer 40 percent of the annulus area at the screen location (Figure 3); the level of distortion ($1 - P_{min}/P_{max}$) was equal to 14 percent at 95 percent of design speed with wide open throttle. The screen for hub-radial distortion tests covered the inner 40 percent of the annulus area at the screen location; the distortion level was 10 percent with wide open throttle at 95 percent of design speed. The screen for circumferential

distortion covered 90 degrees of the inlet annulus with a distortion level of 14 percent at 95 percent of design speed. The circumferential screen was rotated to six positions so that twelve circumferential readings could be obtained with dual instrumentation.

Several different inlet configurations were required for the various types of testing performed during this program. As shown in Figure 3, performance testing with inlet flow distortion was done with distortion inducing screens positioned 32 inches upstream of the rotor blade leading edge. For performance testing with uniform inlet flow, the distortion screen and its support struts were removed and the tip of the stationary nose cone was 30 inches upstream of the rotor leading edge. A photograph of the uniform inlet flow configuration is shown in Figure 25. For noise measurements, all the inlet support struts were removed and the stationary nose fairing was replaced with a short rotating nose cone, Figure 26.

The same discharge section was used for all tests and included eight discharge support struts located seven inches downstream of the stator.

A split-ring outer case over the rotor was fashioned from the original case and was used to simplify changing the casing configuration.

C. INSTRUMENTATION AND CALIBRATION

1. Aerodynamic Instrumentation

Airflow was measured with a flow nozzle designed to ISA specifications [ref. 11]. Flow measurements made with this system are accurate to within one percent.

Compressor speed was measured with an impulse-type pickup which is an electromagnetic device that counts the number of gear teeth passing within an interval of time and converts the count to revolutions per minute. The accuracy of the speed measurements was within 0.2 percent of indicated speed between 3600 and 8900 rpm.

The instrumentation used for measuring the overall and the blade-element performance data is listed in Table IV, and typical probes are shown in Figure 27. The axial and circumferential positions of the instrumentation are shown in Figures 28 and 29, respectively. Changing to a split casing necessitated shifts in the circumferential location of some instrumentation from that used in previous tests [ref. 1 & 2].

TABLE IV

PERFORMANCE AND BLADE-ELEMENT INSTRUMENTATION

	INSTRUMENT PLANE LOCATION	PARAMETER	TYPE AND QUANTITY
Station 0	plenum chamber	P	6 pressure taps on plenum wall, 5 on automatic data-acquisition system transducers, 1 on manometers

TABLE IV (CONT'D)

	INSTRUMENT PLANE LOCATION	PARAMETER	TYPE AND QUANTITY
Station 0	plenum location	T	6 bare wire thermocouples, 5 on automatic data-acquisition system 1, on self-balancing precision potentiometers
		inlet noise	8 condenser-type microphones
Station 0.1 Station 0.2 Station 1.1 Station 2.1		p	2 OD and 1 ID wall static taps
Station 4	rotor inlet	P, p, β	2 disk traverse probes 180 degrees apart, 9 radial positions†
		p	4 OD and 6 ID wall static taps
		P	2 fixed radial rakes spaced 180 degrees apart, 9 radii†
Station 6.1	rotor exit	p	4 OD and 4 ID wall static taps
Station 10	stator inlet	P, p, β, T	2 combination traverse probes, 9 radial positions†
		p	4 OD and 4 ID wall static taps located on extension of mid-channel line
		p	4 OD and 4 ID wall static taps spaced across vane gap
Station 13	stator exit	P	2 equally spaced, 15-element circumferential wake rakes traversable to each of nine radial locations†
		T	6 fixed radial temperature rakes at each of 9 radii†, spaced circumferentially to obtain readings across a vane gap. A 7th probe located 180 degrees from a probe spaced in the center of a channel was installed for checking purposes and subsequent distortion testing.

TABLE IV (CONT'D)

INSTRUMENT PLANE LOCATION	PARAMETER	TYPE AND QUANTITY
stator exit	P, p, β, T	2 combination traverse probes, 9 radial positions†
	p	4 OD and 4 ID wall static taps located on extension of mid-channel line
	p	4 OD and 4 ID wall static taps spaced across vane gap
	downstream noise	1 crystal microphone
Station 15.1 rig exit	P	1 fixed 13-element wake rake

† Radial position of each axial station defined as the intersection of the axial station and the design streamline which passes through 5, 10, 15, 30, 50, 70, 85, 90 and 95 percent of passage-height locations at rotor blade trailing edge.

All traversing probe measurements were made at nine radial locations defined by design streamlines which passed the rotor trailing edge at the 5, 10, 15, 30, 50, 70, 85, 90, and 95 percent span locations. The fixed radial rakes for measuring total pressure near the rotor leading edge (Station 4, Figure 28) were in place only during the testing with inlet flow distortion.

Transducers were used to measure pressures on all probes, fixed rakes, and static pressure taps, and the results were recorded in millivolts by an automatic data-acquisition system. The pressures measured with this system were accurate to within 8.5 psf. All traversing probes were calibrated for Mach number as a function of the indicated static-to-total pressure ratio and pitch angle. In addition, for the disk probes the total pressure recovery and yaw angle deviation were calibrated as functions of Mach number and pitch angle. For the combination probes, total pressure recovery and total temperature recovery were calibrated as a function of Mach number and pitch angle; there was no yaw angle deviation. The angular position was accurate to within one degree for all the air-angle measurement instrumentation.

All temperatures were measured with chromel-alumel type K thermocouples, and the data were recorded in millivolts by the automatic data-acquisition system. All temperature sensing elements and the leadwires were calibrated over their full operating range. All of the temperature instrumentation was calibrated for temperature recovery as a function of Mach number. The overall rms temperature accuracy was estimated to be within 0.7°F.

Strain gages were installed on stationary and rotating critical parts to determine the levels of steady and vibratory stress over the operating range of the compressor. The locations of the rotor and stator strain-gages are shown in Figure 30.

The parameters listed in Table V were recorded continuously during excursions into stall. One hot-film probe with three radially separated sensors was located at the rotor inlet and used to determine the point of initiation and radial extent of rotating stall cells. Readings from this probe along with selected rotor and stator strain-gages, a rotor discharge wall static pressure tap, and a rotor speed signal from an impulse pickup were recorded simultaneously on an oscillograph trace as the fan discharge throttle was closed. The other parameters listed in Table V were recorded at approximately four second intervals as the fan stage was throttled into stall.

TABLE V

CONTINUOUSLY RECORDED STALL PERFORMANCE INSTRUMENTATION

INSTRUMENT PLANE LOCATION		PARAMETER	TYPE AND QUANTITY	RECORDED†
	flow nozzle	p	upstream static	AR
		p	downstream static	AR
		Δp	Δp transducers (3)	AR
		T	temperature	AR
Station 0.0	inlet plenum	P	pressure	AR
		T	temperature	AR
Station 4	rotor inlet		3 hot-film sensors located on one probe at 25, 50, and 85 percent span from hub	OT
	rotor blade	emf	3 strain-gages	OT
Station 6.1	rotor exit	p	1 OD wall static tap	AT, OT
Station 10	stator inlet	p	1 OD wall static tap	AR
	stator vane	emf	3 strain-gages	OT
Station 13	stator exit	p	1 OD wall static tap	AR
Station 15.1	rig exit	P	8 elements of fixed 13-element circumferential wake rake at midspan	AR
	gearbox	N	impulse pickup in gearbox	AR, OT

† AR refers to automatic recording system (readings every four seconds)
OT refers to oscillograph tape (continuous)

2. Acoustic Instrumentation

Compressor inlet noise was measured using eight microphones at the locations shown in Figure 31. These locations were the same as those used during previous tests [ref. 1 & 2]. They were selected on the basis of the sound-pressure-level distribution within the inlet. Details are discussed in reference 1.

In addition to the microphones installed in the inlet, a one-quarter inch diameter dynamic pressure transducer (crystal microphone) was installed in a probe located one inch downstream of the stator trailing edge to obtain blade-passing-frequency data downstream of the fan stage. Three radial locations of the probe were investigated cf which one was selected for subsequent noise measurements (Figure 31).

A flowchart of the acoustic recording system used during the tests is shown in Figure 32. The outputs from each condenser microphone and from the one-quarter inch diameter crystal microphone passed through a monitor and signal attenuator which amplified or attenuated the signals to the level providing the optimum input voltage range for the tape recorder. All data were recorded in the FM mode on magnetic tape at a speed of 30 inches per second.

D. TEST PROCEDURE

Tests were conducted to determine both mechanical and aerodynamic performance of the fan stage. Vibratory stresses were measured prior to testing each configuration. A comprehensive vibratory stress program was conducted during uniform inlet flow shakedown tests. Speed accelerations and decelerations were conducted up to 115 percent of design speed at wide open, peak efficiency, and near-stall throttle settings for each of four stator angle settings: 5-degree open, nominal, 5-degree closed, and 10-degree closed. An abbreviated stress program, consisting of accelerations and decelerations at one or two throttle settings, was conducted for tests with inlet flow distortion and tests with tip casing treatments.

Stall flow at a given speed was determined by slowly closing the rig throttle until flow instability was indicated by an abrupt increase in static pressure downstream of the flow nozzle. Stall flows given in this report are the minimum values at which the fan could operate without flow instabilities. The fan was stalled more than once at each speed to substantiate the stall flows.

Tests were conducted to identify rotating stall using hot-film probes at the rotor inlet. These tests were conducted at all speeds where performance data were taken and for all configurations except for uniform-inlet flow with tip treatment where no change was expected between the solid wall and tip treated configurations since the stator controlled stall. Whenever rotating stall was identified during these tests, it occurred simultaneously with flow instability (i.e., at the stall flow).

A stator optimization program was conducted during the initial testing to determine the optimum stator setting for maximum efficiency and flow range. These tests were conducted with four stator-settings: 1) 5-degree open (i.e., increased air incidence compared to the nominal setting), 2) nominal, 3) 5-degree closed, and 4) 10-degree closed. Complete aerodynamic data were recorded for several operating points at 100 percent of design speed for each stator set-

ting. Based on the results of these optimization tests at design speed, the nominal stator setting angle was selected as the optimum.

Additional performance tests for uniform inlet flow were conducted over a speed range from 65 to 110 percent of design with the nominal stator setting to document performance of the fan with the redesigned stator over a wide range of operation. A limited amount of data was also taken with the stator closed 10 degrees where the stage could operate with reasonable efficiency at lower flows before stalling, providing a wider range of rotor data.

Distortion tests with the nominal stator-setting were conducted to determine the effects on fan stage performance of tip-radial, hub-radial, and circumferential inlet distortion. Data points were taken with each type of distortion at 80, 90, and 95 percent of design speed. Distortion testing was not attempted above 95 percent of design speed because during previous tests [ref. 1] excessive rotor blade vibration due to first bending rotor blade flutter prevented testing above this speed with tip-radial distortion.

Fan performance with the stator 10 degrees closed was measured with hub-radial and circumferential distortion to provide additional velocity vector data. These data were obtained at 95 percent of design speed only. No performance testing was done with tip-radial distortion and the stator closed 10 degrees because of excessive first bending rotor blade flutter.

Distortion tests with the nominal stator-setting and with rotor tip casing treatment were performed at 80, 90, and 95 percent of design speed with hub-radial, tip-radial, and circumferential inlet distortion to determine whether the treatment would increase the distortion tolerance of the stage. Uniform inlet performance data were also obtained with rotor tip casing treatment to determine the effect of tip treatment on performance with uniform inlet flow.

Noise tests were conducted with uniform inlet flow at the nominal stator-setting both with and without rotor tip casing treatment. Data were recorded at part throttle (peak efficiency) and wide open throttle operating points between 80 and 110 percent of design speed. Additional data with uniform inlet flow were taken between 80 and 110 percent of design speed with the stator 10 degrees closed and with solid outer casing.

The final test consisted of running a check point at design speed with uniform inlet flow, nominal stator-setting, and solid casing. This test verified that no degradation of performance occurred during the test program.

E. DATA REDUCTION TECHNIQUES

1. Aerodynamic Data

All performance data were automatically recorded in millivolts on computer cards. These data were then converted to engineering units and corrected and averaged as described in the following sections.

Pressure Data From Fixed-Element Probes

Data obtained from total pressure probes located in supersonic flow were corrected for shock losses.

The circumferential total pressure distributions indicated by the two wake-rakes were mass-flow-averaged at each radial position, using a constant circumferential static pressure determined by linearly interpolating the wall static pressure data. Peak values from the circumferential pressure distribution indicated by each wake-rake were chosen to represent the stator exit free-stream and rotor exit pressures.

A stator wake blockage factor (defined in Appendix A) was calculated at each radial position for use in the flowfield calculation program to improve the accuracy of the static pressure and velocity calculations.

Free-stream pressures, circumferentially mass-flow-averaged pressures, and wake blockage factors from both rakes were each arithmetically averaged for each radial location. The resulting radial distributions were then radially mass-flow-averaged by the flowfield analysis program to calculate the overall performance. The radial distributions of static pressure required for radial mass-flow-averaging were calculated by the flowfield analysis program.

Data From Traversing Combination and Disk Probes

The combination and disk probes provided measured total pressure, measured air angle, calibrated Mach number, and calculated static pressure at the selected radial locations. In addition, the combination probes provided measured total temperatures. These data served as a check on the data from fixed-element pressure and temperature probes. The measured total pressure, total temperature, and flow angle from these probes were corrected using Mach number recovery calibration curves for individual probes. Mach number was determined from a calibration of measured total and static pressures. The resulting calibrated Mach number and corrected total pressure were then used in conjunction with standard air property tables to calculate static pressure. Of this measured traverse data, only air angle was used in the flowfield calculation; the other data were used for checking and for substantiating flowfield calculations.

Stationary Temperature Probe Data

Temperature probes were calibrated for Mach number and pressure level. These probes consisted of six fixed radial-rakes spaced approximately equally about the annulus behind the stator with each rake located at a different circumferential position relative to a stator gap. The variations in recovery correction factor with pressure were applied as noted in reference 12. A circumferential mass-flow average was calculated at each radial position and used in the flowfield calculation. The circumferential total pressure distribution required for this calculation was obtained from the wake rakes.

Overall Performance Calculations

Corrected speed ($N/\sqrt{\theta}$), corrected weight flow ($W\sqrt{\theta}/\delta$), total temperature ratio across rotor or stage (T6/T5 or T12/T5), total pressure ratio across rotor or stage (P6/P5 or P12/P5), and adiabatic and polytropic efficiencies across either rotor or stage (η_{ad} η_p) are tabulated in Appendixes E through H. Overall performance for the rotor is tabulated along the bottom of the rotor data and for the stage along the bottom of the stator data. This performance was calculated from the flowfield analysis program which translates pressure measurements along streamlines to the blade edges. Overall performance parameters were based on conditions of the rotor leading edge (Station 5). With radially distorted inlet flow, performance was based on the measured, mass-flow-averaged pressure at the rotor inlet instrument plane (Station 4). Discharge total pressures and temperatures for overall performance calculations were measured with fixed element probes and mass-averaged as previously described.

Averaging techniques described previously were used for uniform inlet flow and for radial distortion where the axisymmetric flowfield analysis program was used. Different averaging techniques were applied to temperatures and pressures for evaluating overall performance for the circumferential distortion tests where the flowfield program could not be used. Each of the six individual temperature rakes was radially mass-averaged for each screen position, and the 36 resulting values (six probes from each of six screen positions) were arithmetically averaged. Total pressures were radially mass-averaged for each wake rake (15 elements mass-averaged gapwise at each radial location) for all six screen positions, and the twelve resulting values were arithmetically averaged. The stage efficiency based on an arithmetic average of the radially mass-averaged pressures differed by less than 0.1 percent from the efficiency computed using a circumferential mass average of the radial mass averages (i.e., the scheme used in the analysis of data in reference1).

The overall stall-performance data consisted of airflow and rotor speed. Stall flow was calculated from the flow nozzle pressure recorded at approximately four-second intervals. Pressure ratio at stall was estimated from extrapolation of overall performance data at constant speed. Stall data appears in the overall performance figures.

Flowfield Analysis Computer Program

The blade-element performance data tabulated in Appendixes E through H were calculated using a flowfield analysis computer program. Calculations were made at 19 streamlines using flowpath geometry and measurements at nine fixed radial locations defined by design point streamlines passing through the rotor trailing edge at 5, 10, 15, 30, 50, 70, 85, 90 and 95 percent of the passage height. All parameters were corrected to standard-day conditions. The *measurements and blockage estimates used for the solution of the flowfield program were:*

1) Compressor Inlet (Station O, Figure 28); Corrected weight flow and corrected rotor speed

2) Rotor Inlet Instrument Plane (Station 4); Constant radial distribution of standard-day temperature, axial inlet absolute air angle, constant radial distribution of standard-day pressure for tests with uniform inlet flow, and radial distributions of total pressure from the two rotor-inlet rakes for tests with radial inlet distortion.

(The radially mass-averaged pressure was adjusted to standard-day conditions.) Estimated blockage factor to account for wall boundary layer (Figure 6)

3) Stator Inlet (Station 11); Radial distribution of total-pressure free-stream values from the wake rakes behind the stator divided by the rotor inlet total pressure. Estimated blockage factor to account for wall boundary layer (Figure 56)

4) Stator Exit Instrument Plane (Station 13); Radial distributions of total temperature from the circumferentially mass-average temperature rake data divided by the rotor inlet total temperature. Radial distributions of the total pressure data from both wake rakes divided by the rotor inlet total pressure. Also radial distribution of the wake rake blockage factors (see Appendix A) from both wake rakes and the radial distribution of the absolute air angle from the two disk probes

All static pressure distributions and air angles behind the rotor were calculated by the computer program on the basis of mass-flow continuity, radial equilibrium, and energy equations assuming axisymmetric flow. Curvature, enthalpy, and entropy gradient terms were used in the equilibrium calculations. Blade-element performance at the blade edges were calculated by translating the measured data from the instrument planes along streamlines. The blade element performance parameters are presented in Appendixes E through H for the nine radial locations defined by streamlines passing through the rotor trailing edge at 5, 10, 15, 30, 50, 70, 85, 90 and 95 percent of the passage height.

2. Acoustic Data

The acoustic data were reduced using the system shown in Figure 33. The tape recorded data were processed through a wave analyzer having a 50 Hz bandwidth filter. The output of the analyzer was then recorded on a graphic-level recorder so that a trace of sound pressure level as a function of frequency could be obtained. From these traces, broadband noise and supersonic-tip-speed (combination tone, multiple pure tones, or "buzz saw") noise were evaluated. Blade-passing-frequency data were time averaged for 30 seconds at each compressor operating point. This was accomplished by tuning the wave analyzer to the blade-passing-frequency and obtaining a trace on the recorder of the sound pressure level at this frequency as a function of time.

The supersonic fan noise (combination tone noise) was computed by summing the sound pressure levels of the discrete frequency tones below the blade-passage-frequency but at integral multiples of the rotor speed. The discrete frequency levels were obtained directly from the 50 Hz bandwidth spectrum traces from each of the microphones and were logarithmitically averaged.

The average acoustic power level for each one-third octave band was calculated for the broadband noise from the following equation (derived in reference1):

$$PWL = SPL + 10 \log v - 10 \log H - 19.4 \text{ dB}$$

In order to determine the average value of the broadband sound pressure level to use in this equation, each spectrum trace was marked in preferred one-third octave bands. The average pressure reading within each band was then determined after deleting all discrete frequency tones. A correction was then applied to the averaged sound pressure level to account for the fact that a 50 Hz bandwidth filter was used rather than a one-third octave filter. The correction involved the addition of the factor 10 log (fz/50) where fz is the bandwidth of each one-third octave expressed in hertz. The values of the corrected broadband sound pressure levels from each microphone were then averaged logarithmically within each one-third octave band for each operating point. These average broadband sound pressure levels and the reverberation time determined experimentally [ref. 1] were used to calculate the radiated sound power level from the acoustic power level equation.

The equivalent volume of the plenum chanber, v, in the acoustic power-level equation is particularly difficult to determine for an open-ended plenum such as used for these tests. The calculated power level, however, is relatively insensitive to chamber volume since doubling the volume raises the calculated power level by only 3 dB. In any event, the data trends were not affected by the volume used in the calculations because the volume was a constant. A good approximation of the volume is 442 ft^3.

IV. RESULTS AND DISCUSSION

A. STATOR OPTIMIZATION TESTS

1. Overall Performance and Stall Investigation

Optimum stage-performance was determined at design speed with uniform inlet flow by conducting tests with the stator in its nominal angle position, 5 degrees open, 5 degrees closed, and 10 degrees closed. Stage and rotor overall performance are presented in Figures 34 and 35 and Tables X to XIII of Appendix E.

With the stator in its nominal position, a measured maximum stage-efficiency of 88.3 percent was obtained at a pressure ratio of 1.478 and a corrected flow of 180.07 lb/sec (Figure 34). No change in maximum stage-efficiency occurred when the stator was closed 5 or 10 degrees; however, maximum flow capacity decreased 3 and 13 lb/sec, respectively. Maximum stage efficiency dropped about three percentage points when the stator was opened 5 degrees. The overall rotor performance data (Figure 35) did not appear to have been affected by the various stator-settings.

The nominal stator-setting was chosen as the optimum setting because at design speed it provided the best combination of overall efficiency and absolute value of stall margin. Overall performance (Figure 34) also appeared to be good with the stator five degrees closed but with slightly reduced flow range compared with the nominal stator-setting.

2. Blade Element Aerodynamic Data

Plots of total-pressure-loss coefficient, $\bar{\omega}$, diffusion factor, D, and deviation angle, δ°, versus incidence angle to the suction surface, i_s, are presented in Figures 36 and 37 for both the rotor and stator at 10, 50, and 90 percents of span for each stator setting angle, γ°, at design speed. The various stator-settings provided total data over a wide incidence range. Blade element parameters calculated at the leading and trailing edges of nine spanwise locations are presented in Tables X to XIII of Appendix E. All percents of span presented herein are relative distances from the hub (i.e., from the inner diameter).

Stator blade element losses for the nominal stator-setting were among the lowest loss levels measured, supporting its selection as the optimum configuration. Also, stator data at the nominal setting were in good agreement with design values except near the hub.

Spanwise distributions of rotor blade-element data for stator-optimization test points with nominal and 10 degrees closed stator positions are compared in Figure 38. Stator setting caused major differences in rotor performance at 5, 10, and 15 percent of span and caused small changes at 30 percent span and essentially no change over the outer 50 percent of span. Figure 36 shows the effects of 5 degrees open, nominal, 5 degrees closed, and 10 degrees closed stator positions on rotor blade element data at 10, 50, and 90 percent of span. The greatest changes occurred with the stator closed 10 degrees and with open throttle.

The differences in hub blade-element performance were due primarily to differences in rotor exit total pressure used to calculate velocity vectors and losses. The test points at which these rotor-exit pressure differences occurred were those where stator choke and high losses limited maximum flow (Figure 34). Stator-exit wake-rake total pressure profiles across the stator gap at 10 and 50 percent of span are compared in Figure 39 for the nominal and 10 degrees closed stator settings. At 10 percent span (Figure 39-A), the [illegible] from the 10 degrees closed stator appeared to fill the entire gap so that the peak pressure was not a freestream value. [illegible]les for unchoked stator blade elements, typified by the data for the nominal stator-position at 10 percent span and both settings at 50 percent span (Figure 39-B), provided good free-stream total pressures at all other percents of span.

Spanwise profiles of stator inlet total pressure from radial traverses at the stator inlet (not presented) showed no effect of stator setting on rotor performance. For the optimization tests with nominal and 10 degrees closed stator settings, total pressures were substituted from these traverses for the wake rake free-stream values in the streamline program and blade element parameters were recalculated. The results (Figure 40) did not show a difference in rotor blade element performance. These stator inlet probes, however, could have caused local back pressuring of the rotor and were therefore not considered a source of accurate blade element data at Mach numbers above 0.80 [ref. 13]. Their consistent measurements with different stator positions, however, were considered a valid indication that closing the stator did not affect rotor performance.

All blade element performance parameters in this report were calculated by a streamline program using free-stream total pressures at the rotor exit and stator inlet. Since these free-stream pressures were not representative of rotor exit pressures at 5, 10, or 15 percent span for the 10 degrees closed stator-setting open-throttle test points, the corresponding blade element data were incorrect. Free-stream pressures were not a problem for any of the nominal stator test points or for points near maximum efficiency.

3. Stress

Continuous vibratory stresses on the rotor and stator blades were below 4000 psi for speeds up to and including 115 percent of design speed. The original stator had vibratory stresses exceeding 10,000 psi at speeds above 110 percent of design speed [ref. 2].

B. UNIFORM INLET FLOW PERFORMANCE

1. Overall Performance and Stall Investigation

Solid Casing

Stage and rotor-only overall performance for the nominal stator setting at 65, 80, 90, 95, 100, and 110 percent of design speed is presented in Figures 41 and 42 and in Table XIV of Appendix F; the figures also include the data recorded during the optimization test (Table X, Appendix E). The stall line was established by extrapolating the characteristic speed-lines to the measured stall airflows, shown as slashed symbols. Corrected speed as a function of corrected stall-flow

is shown in Figure 43; all stall flow data used to determine the values on the overall maps are presented. The differences in stall flow for the various stator settings at speeds above 90 percent indicate that above 90 percent speed the stator controlled stage stall as was the case with the original stator [ref. 1 & 2]. At 90 percent of design speed and below, the rotor apparently controlled stage stall. Stall-flow repeatability was considered to have been within 2.5 lb/sec – stall weight flows are presented in Appendix J. The maximum stage-efficiency (Figure 41) measured at design speed was 88.6 percent at 168.6 lb/sec airflow and 1.501 pressure ratio. However, an efficiency of 88.3 percent was recorded at 180 lb/sec which corresponded to 15 percent stall margin. Stage efficiency remained greater than 87.5 percent from 181 lb/sec to the stall flow of 161 lb/sec. The data point at 180 lb/sec with a pressure ratio of 1.478 and 88.3 percent efficiency agreed well with the design-point values of 179.66, 1.491, and 88.2.

Peak rotor-efficiency for the nominal stator setting was 95 percent at design speed and remained about that value down to 65 percent of design speed (Figure 42). At 110 percent of design speed, peak rotor-efficiency was 92.7 percent, occurring at stall.

In Figure 44 the overall performance of the fan at the nominal stator-setting is compared with performance at the 10 degrees closed setting. In Figure 45 a similar comparison is made for the rotor. Data from optimization tests (Table XIII, Appendix E) are included. Closing the stator 10 degrees permitted the stage to operate at flow rates that were 2 to 9 lb/sec lower at 95, 100, and 110 percent design speed (Figure 44). Stall margin, however, was reduced from 15 to 7 percent at design speed, based upon an operating point with the same operating-line efficiency (88.3 percent) as the nominal stator-setting – 165 lb/sec flow and an overall pressure ratio of 1.51. Although design-speed peak stage-efficiency was about the same with the 10 degrees closed stator setting as that for the nominal setting, part-speed peak efficiencies were as much as 2 percentage points lower. However, maximum pressure ratios were generally about 1.0 percent higher than for tests with the nominal stator-settings for all speeds except 65 percent of design speed. Data for the 10 degrees closed stator setting is given in Appendix F, Table XV.

During transients near stall, strain gage and hot-film probe data were obtained with the solid rotor-casing for both nominal and 10 degrees closed stator settings. Figures 46 and 47 show osillograph traces of these data where indications of stall first began for 80 and 100 percents of design speed with the nominal stator setting. Figure 48 shows the osillograph traces of these data at design speed with the stator 10 degrees closed. Strain-gage data at the nominal stator-setting and 80 percent of design speed (Figure 46) show vibrations occurring in the rotor before occurring in the stator, indicating a rotor stall. Similar results (not shown) were found at 65 and 90 percent of design speed. At 100 percent of design speed, vibrations occurred simultaneously in the rotor and stator blades for tests at both the nominal and 10 degrees closed stators (Figures 47 and 48). Experience with this fan has shown that the simultaneous rise in rotor and stator stress indicates a stator stall in contrast to rotor stall where the rotor strain gages respond clearly before stator strain gages. Surge cycles of approximately 0.30 second duration occurred at all speeds and, although not identified in the excerpt of the trace at 80 percent of design speed (Figure 46), the second cycle did start 0.05 second later. The hot-film trace of Figure 46 shows a disturbance (identified as rotating stall) with a period of 0.03 second occurring continuously throughout the first surge cycle only.

Treated Casing

A rotor tip casing treatment, consisting of skewed slots (Figures 20 and 21), was tested to determine its effect on performance and stall characteristics during uniform inlet flow tests. Rotor tip treatments have been found effective primarily when rotor tip controls the stage stall. For this stage, the rotor controlled the stall at 90 percent of design speed and below with uniform inlet flow as previously indicated by the stall flow and strain-gage data.

Stage and rotor-only overall performance with rotor tip casing treatment and with the nominal stator setting is presented in Figures 49 and 50 and compared to performance without tip treatment. Maximum stage-efficiency decreased two percentage points at design speed because of increased rotor loss. Stall flow at 95 percent design speed with tip treatment occurred 5 lb/sec higher than without treatment although it remained unchanged at both 90 and 100 percent of design speed. Since no change in stall flow was expected at 95 percent of design speed with the addition of rotor tip treatment, the stall flows were reexamined (Figure 43). With tip treatment, the stage was stalled twice at about 150 lb/sec. The single stall-flow of 145 lb/sec for the solid casing was substantiated by a near-stall operating point at 147.1 lb/sec (Figure 41). It would therefore appear that the data are in order and stall margin decreased at 95 percent of design speed with rotor tip casing treatment. Stall margin improved with tip treatment at 80 percent of design speed (Figures 49 and 50) where the rotor set the stall. Table VI summarizes the effects of tip casing treatment on uniform inlet flow performance.

TABLE VI

EFFECTS OF ROTOR TIP CASING TREATMENT ON BOTH STALL MARGIN AND MEASURED PEAK STAGE EFFICIENCY WITH UNIFORM INLET FLOW AND THE NOMINAL STATOR SETTING

% Design Speed	Effect on Stall Margin† Relative to Solid Casing (Percentage Points)	Effect on Measured Peak Efficiency Relative to Solid Casing (Percentage Points)
80	+3.4	0.0
90	0.0	–
95	-3.4	-1.3
100	-0.5	-2.2

†The reference point is the stall point at the respective speed, for uniform inlet flow with nominal stator-setting, solid casing.

2. Blade Element Aerodynamic Data

Solid Casing

Blade element performance data of the rotor and stator at nine radial locations are tabulated in Appendix F, Tables XIV and XV, for nominal and for 10-degree closed stator settings, respectively. Figure 51 presents plots of deviation angle, diffusion factor, and total pressure loss coefficients versus incidence angle to the suction surface for the rotor from tests with both

nominal and 10-degree closed stator settings. Figure 52 presents similar plots of the stator with nominal and 10-degree closed settings. Wide-open throttle data for the rotor and stator hub for the 10-degree closed stator tests are inaccurate as previously described (see A. Stator Optimization). The present series of tests provided rotor blade element data (Figure 51) over twice the incidence or flow range of the previous tests [ref. 2] at design speed. The shape of the rotor loss curves is defined well enough by the data to indicate minimum loss levels.

Closing the stator 10 degrees provided lower levels of stator operating incidences with a corresponding rise in loss, signifying negative stall (Figure 52). Data at the hub, on the negative incidence side of minimum loss, is in error as previously discussed under Stator Optimization. Measured stator deviations were lower than for the slotted vanes [ref. 2], part of which was predicted as a consequence of designing a more uniformly cambered blade in the tip sections. Stator incidence range at the critical hub section (e.g., Figure 52b) was not significantly different from that previously obtained with the original stator design [ref. 1 & 2]. The way in which the redesigned stator obtained the sizeable increase in stall margin with good overall efficiency is illustrated on Figure 53; stator loading, D-factor, at the hub (10 percent span) is presented as a function of corrected weight flow. Overall stage pressure ratio (included in the stall margin calculation) and adiabatic efficiency are also included for convenient reference. At stage stall, there was a critical D-factor of about 0.6 which is common to all the stator designs tested during this program [ref. 1 & 2]. These stator designs were tested with essentially the same rotor and upstream flowpath (same wall boundary layers at stator inlet). With a limiting D-factor of 0.6, increased flow range and, thus, increased stall margin were obtained by a redesign which lowered the D-factor at design flow without sacrificing high overall pressure ratio or efficiency. For about the same pressure ratio, efficiency, and weight flow (180 lb/sec), the D-factor was 0.5 for the redesigned stator as compared with the nearly 0.59 of the original stator. Obviously, there was little flow range or stall margin capability left for the original design.

Spanwise comparisons of data between design losses, deviation angles, diffusion factors, and incidence angles are shown on Figures 54 and 55 for the rotor and stator respectively. Rotor deviation angles at the hub (Figure 54) were approximately 10 degrees as compared with the 5 degrees from previous tests (as indicated by the curve representing the redesign prediction). The 10 degrees is more in line with the original rotor design prediction shown on Figure 54 but signifies a difference in the level of measured temperature rise compared to previous tests.

Blade element data for this report were calculated using three percent more blockage at the rotor trailing edge and stator leading edge stations than was used previously [ref. 1 & 2]. The distribution of blockage is shown in Figure 56. The purpose of the additional blockage in the streamline calculation of this data was to decrease the calculated static pressure to agree with the static pressure measured at the casing walls. The rotor deviation and stator incidence represented by the shaded symbols in Figures 54 and 55 were calculated using the additional blockage. The open symbols represent the same operating point with three percent less blockage (comparable to the blockage used for the redesign prediction). Blockages used at the rotor inlet were the same as previously used [ref. 1 & 2]. Stator exit blockages were calculated from stator wake profiles as defined in Appendix A.

Measured air-angles at the stator inlet, β_{10}, are compared in Figure 57 with angles calculated by the flowfield program for an operating point of 180.4 lb/sec. Calculated angles were derived with the three percent additional blockage which otherwise would have resulted in levels one degree higher. The comparison of calculated and measured angles represents reasonably good agreement; both data provide incidences well within the loss range of stator blade element data (Figure 52).

Treated Casing

Rotor and stator blade element performance data (nominal stator-setting) from the tests with casing treatment are presented in Table XVI of Appendix F. Plots of deviation angle, diffusion factor, and total pressure-loss coefficient versus incidence for the rotor are presented in Figure 58 for 10, 50, and 90 percents of span from the hub; rotor performance both with and without casing treatment is presented. Rotor losses at both ends of the blade were higher with casing treatment while loading level appeared to be the same.

Stator parameters were the same with and without rotor tip treatments (Tables XIV and XVI) except near the hub where slightly lower stator losses and deviations were indicated. Stator data with rotor tip treatment were not plotted because of their similarity with Figure 52 data. All data presented in Table XVI for the rotor tip treatment were calculated using measured temperature as an indication of the energy rise. The technique of using measured stator inlet air angles with Euler's work equation gave inconsistent results.

3. Stress

Continuous vibratory stresses on the rotor and stator blades were unaffected by rotor tip treatments and remained below 4000 psi for all speeds tested.

4. Noise

Solid Casing

To evaluate the fan noise with the redesigned stator, noise measurements were recorded from eight microphones located in the inlet plenum chamber and from one microphone located downstream of the fan (Figure 31). Noise was evaluated for both a nominal and a 10-degree closed stator setting. The location of the microphones and configuration of the fan were discussed under Apparatus and Procedures.

Noise data were recorded at wide open and part throttle operating conditions between 80 and 110 percent of design speed. The wide open operating condition for the nominal stator-setting is indicated by the right end of each speed line in Figure 45, and the wide open condition for the 10 degrees closed stator setting is indicated by the symbols representing maximum flow at each speed. Closing the stator decreased the wide open throttle flow capacity, resulting in a significantly higher pressure ratio at wide open throttle. The part throttle operating conditions during which noise data were measured for the nominal and 10 degrees closed stator settings were about equal in pressure ratio and occurred close to peak pressure ratio.

The broadband noise data were extracted from a narrow band analysis of each inlet microphone. Sound pressure levels in each preferred one-third octave band were calculated from the narrow-band data and then averaged for all inlet microphones. The averaged sound pressure levels and the measured room reverberation characterisitics were used to calculate the one-third octave band sound power levels. Average sound pressure and sound power levels are tabulated in Appendix K, Tables XXX and XXXI.

Figures 59 and 60 show the averaged one-third octave band sound pressure level plotted as a function of blade tip relative Mach number for three one-third octave bandwidths with the fan operation at wide open and part throttle respectively. The frequency bands shown are the same as those presented in references 1 and 2, representing typical low, middle, and high frequency bands. At wide open throttle (Figure 59), the recorded broadband noise levels in the higher frequency bands increased when the stator was closed; however, no significant changes in broad-band noise levels occurred at part throttle when the stator was closed (Figure 60). It would appear that the increase in inlet noise level at wide open throttle was due to the increased rotor pressure ratio (shown in Figure 45) that prevailed when the stator was closed 10 degrees.

The total inlet broadband sound power level was calculated as the logarithmic sum of all the one-third octave band power levels and plotted against blade tip relative Mach number for the nominal and 10 degrees closed stator settings (Figures 61 and 62). The sound power level increased with Mach number and also appears to have increased with pressure ratio as indicated by the difference in sound power levels for the two throttle-positions shown in Figures 61 and 62. The weak dependence of the total inlet broadband sound power level with the Mach number has not been explained but is similar to previous tests [ref. 1 & 2].

Fan inlet time-averaged blade-passing-frequency noise was plotted against blade tip relative Mach number for both stator positions and for wide open and part throttle operating points and the plots are presented in Figures 63, 64, 65, and 66. The time-averaged sound pressure level from each microphone and the calculated logarithmic average of all microphones (except number 5) are shown. As pointed out in reference 1, significant variations in blade-passing-frequency noise levels can occur between microphones when measuring discrete tones in a reverberant chamber due to standing wave patterns. But as before, the logarithmic average showed the same increasing blade-passing-frequency noise with increasing blade speed (Mach number). A significant increase (5 to 10 dB) in inlet blade-passing-frequency noise resulted at wide open throttle when the stator was closed 10 degrees (Figures 63 and 64). This difference, again, appears to be associated with the much higher pressure ratio of the wide open operating points for the 10 degrees closed stator setting (Figure 45). No significant difference in blade-passing-frequency noise resulted at part throttle when the stator was closed (Figures 65 and 66). This also follows from Figure 45 where only small changes in rotor pressure ratio occur due to stator setting at the part throttle condition. The effect of pressure ratio on blade-passing-frequency noise can also be illustrated by the larger difference in blade-passing-frequency noise generated at wide open and part throttle operating lines with the nominal stator-setting (Figures 63 and 65). Little changes were noted between the wide open and part throttle points for the 10 degrees closed stator setting (Figures 64 and 66) where the difference in pressure ratio was small.

Supersonic fan noise levels (combination tone noise) within the inlet plenum chamber were calculated by summing the sound pressure levels of the discrete frequency tones below blade-passing-frequency at integral multiples of the shaft rotational speed. Supersonic fan tip speeds were attained above 100 percent design speed. In Figures 67 and 68, for the wide open and part throttle operating conditions, supersonic fan noise data points are the higher data points at relative tip Mach numbers between 1.14 and 1.23. Values of integrated inlet broadband noise are shown in these figures as the lower data-points for reference. This limited amount of supersonic fan noise data shows no significant effects from changing the stator setting angle or fan pressure ratio.

Fan discharge blade-passing-frequency noise for the 10 degrees closed stator setting is plotted as a function of rotor tip Mach number in Figure 69. These data show increases in level with increases in Mach number and no consistent changes in level between the wide open and part throttle operating points. The trends are consistent with the inlet data. No data are available for the nominal stator position because the probe was inoperative.

Treated Casing

Noise measurements were recorded in the inlet plenum chamber for the rotor tip treatment and nominal stator setting. The same microphone locations were utilized as for the solid casing. Details of the rotor tip casing treatment are shown in Figure 21.

The inlet broadband noise data were reduced and sound power level calculations were performed in the same manner as for the solid casing. Averaged inlet one-third octave band sound pressure and sound power levels are tabulated in Appendix K, Table XXXII. The averaged one-third octave band sound pressure levels are shown in Figures 70 and 71 plotted against tip relative Mach number for the same low, middle, and high one-third octave bands as for the solid casing for wide open and part throttle. Data from both the treated and solid wall configurations are presented in each figure and show that the noise levels were the same throughout the frequency range. These data indicate that the addition of this type of treatment over the blade tips did not have a significant effect on inlet radiated broadband noise over the fan operating range tested.

Figure 72 shows the fan inlet total broadband sound power level plotted as a function of blade tip relative Mach number for both throttle operating positions. Comparison of these data with data from the solid wall configuration (Figure 61) showed no essential difference in either power levels or trends.

Fan inlet time-averaged blade-passing-frequency noise data with casing treatment are presented in Figures 73 and 74 for the wide open and part throttle operating points. A comparison of these figures show that the blade-passing-frequency noise levels increased significantly as the fan was throttled, indicating that pressure ratio affects the level of blade-passing-frequency noise radiating from the inlet. A comparison of Figures 63 with 73 and 65 with 74 shows no significant change in blade-passing-frequency inlet noise due to skewed slots casing treatment. In reference 2, a 5 to 10 dB increase in blade-passing-frequency noise was reported for honeycomb casing treatment.

Supersonic fan noise (combination tone noise) within the inlet plenum is shown in Figures 75 and 76 for the wide open and part throttle operating positions. For comparison, data without treatment have been included. Integrated broadband noise levels are plotted for reference. These data do not show any appreciable difference in supersonic fan noise levels with the addition of the skewed slots rotor tip treatment.

A sampling of the fan discharge blade-passing-frequency noise for the rotor tip casing treatment configuration is shown plotted Figure 77 as a function of tip relative Mach number. Typical spectra obtained with the probe downstream of the stator are shown in Figure 78. Although the blade-passing-frequency tone is clearly evident, its level is difficult to determine at 90 percent of design speed because of the presence of a large discrete tone at the same frequency. Looking at the other spectra, the frequency of this tone was 2700 Hz and did not vary with rotor speed. It is believed that this tone was due to vortex shedding from the Kistler probe (discussed in reference 2) and was responsible for the relatively high blade-passing-frequency noise at 90 percent of design speed (0.97 and 1.01 Mach number) shown on Figure 77. Otherwise, this discharge data shows no significant effect from throttling or fan-speed (Mach number).

C. TIP - RADIAL DISTORTION PERFORMANCE

1. Overall Performance and Stall Investigation

Typical fan inlet pressure and velocity distributions measured by the rotor inlet probes at 95 percent of design speed are shown in Figure 79. Maximum inlet distortion ($1 - P_{min}/P_{max}$) was 14 percent at 95 percent of design speed. The effect of this distortion relative to uniform inlet flow is shown in the overall stage and rotor performance curves presented in Figures 80 and 81; the results in terms of stall-margin and efficiency are summarized in Table VII. At 95 percent of design speed, stall margin decreased 10.9 percentage points and peak efficiency decreased 0.7 percentage points.

The tip treatment partially restored the stall margin lost as a result of inlet tip-radial distortion as shown by the overall stage and rotor performance (Figures 80 and 81). Stall margin was improved seven percentage points at 95 percent of design speed. Stall weight flows are tabulated in Appendix J. The effects of tip casing treatment on stall margin and measured peak stage-efficiency relative to uniform inlet flow performance (no treatment) are summarized in Table VII. Stall margins with casing treatment were improved with only small penalties in peak stage-efficiency.

Figures 82 and 83 show ocillograph traces of hot-film and strain-gage measurements made during stall with tip-radial distortion and with and without rotor tip treatment at 95 percent of design speed. Surge cycles of 0.25 second duration occurred at 95 percent speed with the tip treated casing configuration (Figure 82) and at 80 percent speed with the solid casing configuration (not shown). Stable rotating stall (without surge cycles) occurred at 95 percent speed with the solid casing (Figure 83) and at 80 percent speed with the tip treated configuration (not shown).

TABLE VII

EFFECTS OF TIP RADIAL DISTORTION ON BOTH STALL-MARGIN AND MEASURED PEAK STAGE-EFFICIENCY WITH SOLID CASING AND WITH SKEWED SLOTS OVER THE ROTOR TIP

Configuration	% Design Speed	Effect on Stall Margin † Relative to Uniform Inlet Flow and No Tip Treatment (Percentage Points)	Effect on Measured Peak Efficiency Relative to Uniform Inlet Flow and No Tip Treatment (Percentage Points)
Solid Casings	80	-13.4	-1.3
	90	-11.3	-1.5
	95	-10.9	-0.7
Treated Casing	80	-6.9	-1.8
	90	-4.8	(insufficient data)
	95	-4.2	-2.0

† The reference point is the stall point at the respective speed for uniform inlet flow with nominal stator setting and solid casing.

2. Blade Element Aerodynamic Data

Tabulations of blade element data with solid casing are presented in Table XVII of Appendix G. Plots of diffusion factor, deviation angle, and total pressure loss coefficient versus incidence angle are shown in Figures 84 and 85 for 10, 50, and 90 percents of span for the rotor and stator.

Tabulations of blade element data with rotor tip casing treatment are presented in Table XVIII of Appendix G. The effect of casing treatment compared with the solid case is illustrated in Figures 84 and 85. Rotor tip loading was allowed to increase. The stator maximum incidence angle near the tip (Figure 85c) and at 95 percent of design speed was about 11 degrees greater with casing treatment than without.

3. Stress

Continuous vibratory stresses were acceptable through 95 percent of design speed with the tip radial distortion and with the stator set in the nominal position. Tests were not attempted above 95 percent of design speed because of excessive first bending rotor flutter encountered during tests reported in references 1 and 2. With the stator set 10 degrees closed, rotor flutter in the first bending mode caused stress which rose above 10,000 psi at 80 percent of design speed. These stresses prevented testing with the stator closed 10 degrees.

D. HUB - RADIAL DISTORTION PERFORMANCE

1. Overall Performance and Stall Investigation

Data were obtained at the nominal and 10 degrees closed stator settings. Typical inlet pressure and velocity distributions measured by the inlet disk probes at 95 percent of design speed are shown in Figure 86. Maximum inlet distortion ($1 - P_{min}/P_{max}$) was 10 percent at 95 percent of design speed. The effect of this distortion relative to uniform inlet flow is shown in the overall stage and rotor performance curves provided in Figures 87 and 88; the results in terms of stall margin and efficiency are summarized in Table VIII. Stall margin improved eight percentage points with hub distortion at 95 percent of design speed. This hub distortion also caused a flow shift and rotor work redistribution which lowered the overall stage pressure ratio. Stator inlet traverse probes in the hub region reacted unstably in the yaw or air angle measuring mode indicating unusual flow instability or turbulence. This instability may have obscured the significance of the stator hub critical loading which prevailed with uniform inlet flow. Such instability near the hub could also have an adverse effect on stub stages and/or core compressor in a turbofan engine application.

Rotor tip casing treatment provided further increases in stall margin as shown by the overall performance curves in Figures 87 and 88. The increase in stall margin provided by the tip casing treatment is evidence that the rotor was setting the stall without treatment. The results in terms of stall margin and efficiency are summarized in Table VIII. Stall weight flows are tabulated in Appendix J.

TABLE VIII

EFFECTS OF HUB RADIAL DISTORTION ON BOTH STALL MARGIN AND MEASURED PEAK STAGE-EFFICIENCY WITH SOLID CASINGS AND WITH SKEWED SLOTS OVER THE ROTOR TIP

Configuration	% Design Speed	Effect on Stall Margin† Relative to Uniform Inlet Flow and No Tip Treatment (Percentage Points)	Effect on Measured Peak Efficiency Relative to Uniform Inlet Flow and No Tip Treatment (Percentage Points)
Solid casing nominal stator	80	+8.6	+0.6
	90	+8.6	-0.4
	95	+8.0	-1.5
Treated casing nominal stator	80	+18.3	-1.7
	80	+18.7	(Insufficient data)
	95	+18.1	-4.1

† The reference point is the stall point at the respective speed for uniform inlet flow with nominal stator setting and solid casing.

Figures 89 and 90 provide oscillograph traces of hot-film and strain-gage probes made during hub-radial distortion tests with and without rotor tip casing treatment at 80 percent of design speed. Hot-film probes indicated responses of about equal magnitude at the hub and tip

for the solid casing. The addition of tip treatment caused a reduction in the magnitude of the tip response. Rotating stall and surge cycles occurred during stall for both tip treated and solid casing tests at 80 percent of design speed. Similar patterns existed at 90 percent of design speed for tests with and without tip casing treatments (not shown). The period of excitation, measured by the hot-film probe and identified as rotating stall on Figures 89 and 90, doubled during subsequent surge cycles.

2. Blade Element Aerodynamic Data

Tabulations of blade element data with hub-radial distortion and solid casing for the nominal stator setting are presented in Table XIX and for the 10 degrees closed stator setting in Table XX of Appendix H. Plots of diffusion factor, deviation angle, and total pressure loss coefficient versus incidence angle are shown in Figures 91 and 92 for 10, 50, and 90 percents of span for the rotor and stator. Tabulations of blade element data with tip casing treatment and nominal stator setting are presented in Table XXI of Appendix H. Figures 91 and 92 illustrate the effect of tip casing treatment compared with the solid case. Tip treatment extended the range of blade element performance.

3. Stress

No undesirable vibratory stresses were encountered during hub-radial distortion tests.

E. CIRCUMFERENTIAL DISTORTION PERFORMANCE

1. Overall Performance and Stall Investigation

Overall stage performance is presented in Figure 93. Stall weight flows are tabulated in Appendix J. The stall line was essentially unaffected by inlet circumferential distortion. The tip treatment improved tolerance to circumferential distortion, providing a better stall line then uniform inlet flow at all speeds tested (Figure 93). The effects of circumferential distortion on stall margin and on measured peak-efficiency with solid casings and with skewed slots over the rotor tip are presented in Table IX.

Typical distributions of static pressure are presented in Figures 94 and 95 for tests at 95 percent of design speed with circumferential distortion. The static pressures were obtained by means of taps located at five axial-planes between the distortion screen and the rotor inlet on both the outer case and the inner hub.

Figures 96 and 97 show oscillograph traces of hot-film and strain-gage probes made during stall with circumferential distortion and with and without rotor tip treatment at 95 percent of design speed. Hot-film probes show surge cycles and rotating stall during tests with and without rotor tip treatment.

2. Velocity Vectors

Circumferential patterns of velocity, flow angle, and total pressure are presented in Figure 98 for tests with solid casing and nominal stator setting; data at 10, 50, and 90 percents of

span are presented. Similar data for tests with solid casing and 10-degree closed setting are presented in Figure 99 and for the treated casing and nominal stator setting on Figure 100. Similar information for the stator discharge station is presented in Figures 101, 102, and 103. Distributions of stator discharge temperature are shown in Figures 104, 105, and 106 for each of the configurations.

Total pressure, total temperature, velocity, and air angle for the nine radial probe positions, three speeds, and the various stator and casing configurations are presented in Tables XXII to XXVII of Appendix I. Temperatures and pressure values presented in these tables are ratioed to the inlet plenum. Ratios to the average rotor-inlet total pressure may be determined by applying the pressure ratio across the circumferential screen (Figure 107). A summary of overall stage performance for inlet circumferential distortion is given in Table XXVIII, Appendix I.

TABLE IX

EFFECTS OF CIRCUMFERENTIAL DISTORTION ON STALL MARGIN AND MEASURED PEAK-STAGE EFFICIENCY WITH SOLID CASINGS AND WITH SKEWED SLOTS OVER THE ROTOR TIP

Configuration	% Design Speed	Effect on Stall Margin† Relative to Uniform Inlet Flow and No Tip Treatment (Percentage Points)	Effect on Measured Peak Efficiency Relative to Uniform Inlet Flow and No Tip Treatment (Percentage Points)
Solid casing nominal stator	80	-.8	+.5
	90	-2.0	-.9
	95	+1.0	-1.4
Treated casing nominal stator	80	+8.7	-.5
	90	+5.9	(insufficient data)
	95	+3.0	-4.0

† The reference point is the stall point at the respective speed for uniform inlet flow with nominal stator setting and solid casing.

3. Stress

No undesirable vibratory stresses were encountered during the circumferential distortion tests.

V. SUMMARY OF RESULTS

A single-stage fan with a rotor tip speed of 1000 ft/sec was retested with a redesigned stator. The tests were conducted both with and without rotor tip casing treatment. The principal results obtained from this investigation are presented below.

A. OPTIMIZATION

The design stator setting angle was selected as the optimum setting for most of the performance testing because it provided the best combination of stage-efficiency and stall-margin.

B. PERFORMANCE WITH UNIFORM INLET FLOW

A fifteen percent stall-margin was demonstrated at design speed relative to an operating point with a stage efficiency of 88.3 percent. Stage pressure ratio at this point was 1.478 with a corrected flow of 180 lb/sec. Design values were 88.2 percent efficiency, 1.491 pressure ratio, and 179.66 lb/sec flow. The addition of skewed slots casing treatment over the rotor tip had no effect on design speed stall-margin because the stator hub rather than rotor tip controlled the stall; however, maximum stage efficiency decreased two percentage points.

C. PERFORMANCE WITH DISTORTED INLET FLOW

Tip-radial distortion reduced stall margin by 11 percentage points. Skewed slots in the casing recovered seven percentage points of stall margin.

Hub-radial distortion increased the stall margin about eight percentage points over that of uniform inlet flow but reduced the total pressure rise. Rotor tip casing treatment provided an even greater stall-margin indicating a tip controlled stall.

Circumferential distortion had little effect on stall margin. Tip casing treatment with circumferential distortion increased stall margin significantly at 80 and 90 percent of design speed.

Skewed slots casing treatment over the rotor tip increased the stall margin of the stage with all three types of inlet distortion but with a decrease in adiabatic efficiency at all speeds.

D. NOISE TESTS

Fan inlet and discharge noise was generally at the same level as the previous tests. Variations may be attributed to differences in operating lines on which the data were recorded. Closing the stator setting angle 10 degrees did not appear to affect noise levels. Skewed slots in the casing over the rotor tip did not affect inlet radiated noise.

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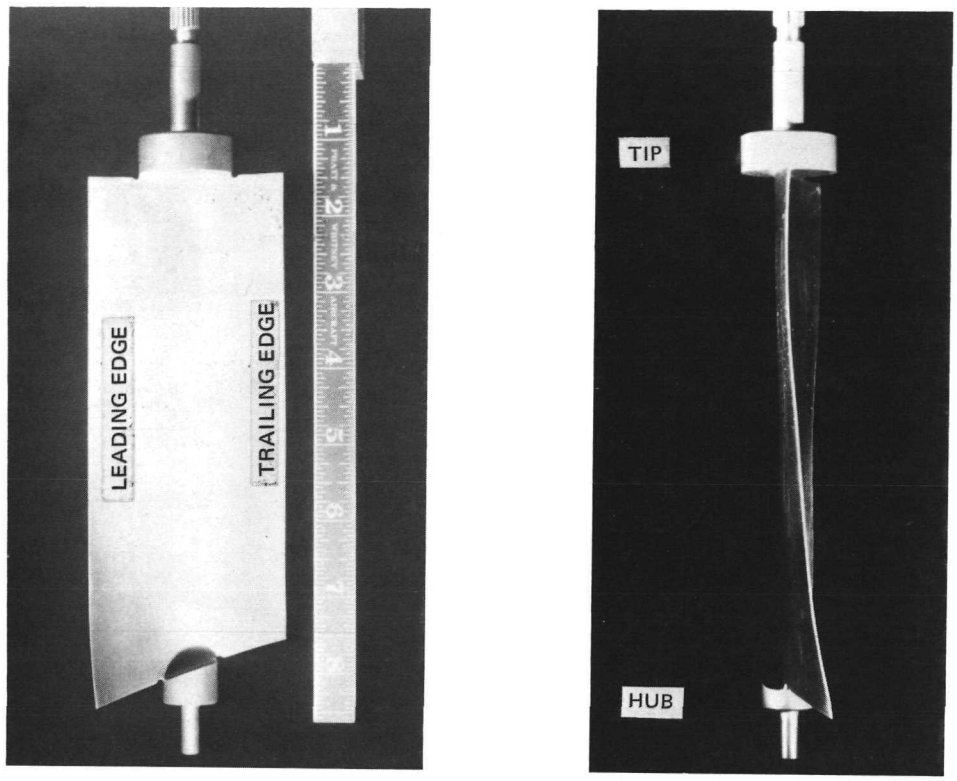


Figure 1 Redesigned Stator

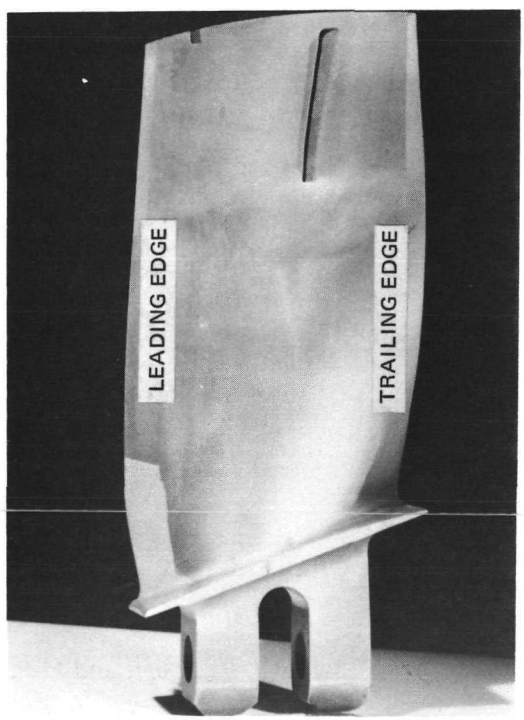


Figure 2 Slotted Rotor Blade

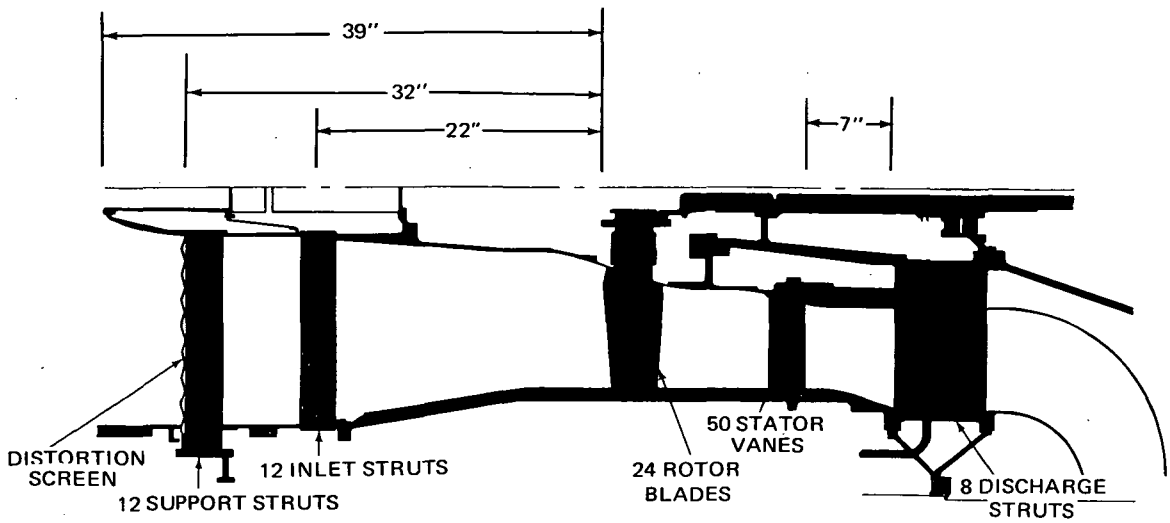


Figure 3 Schematic of Fan Stage Mounted in Test Rig, Including Support Struts for Distortion Screens

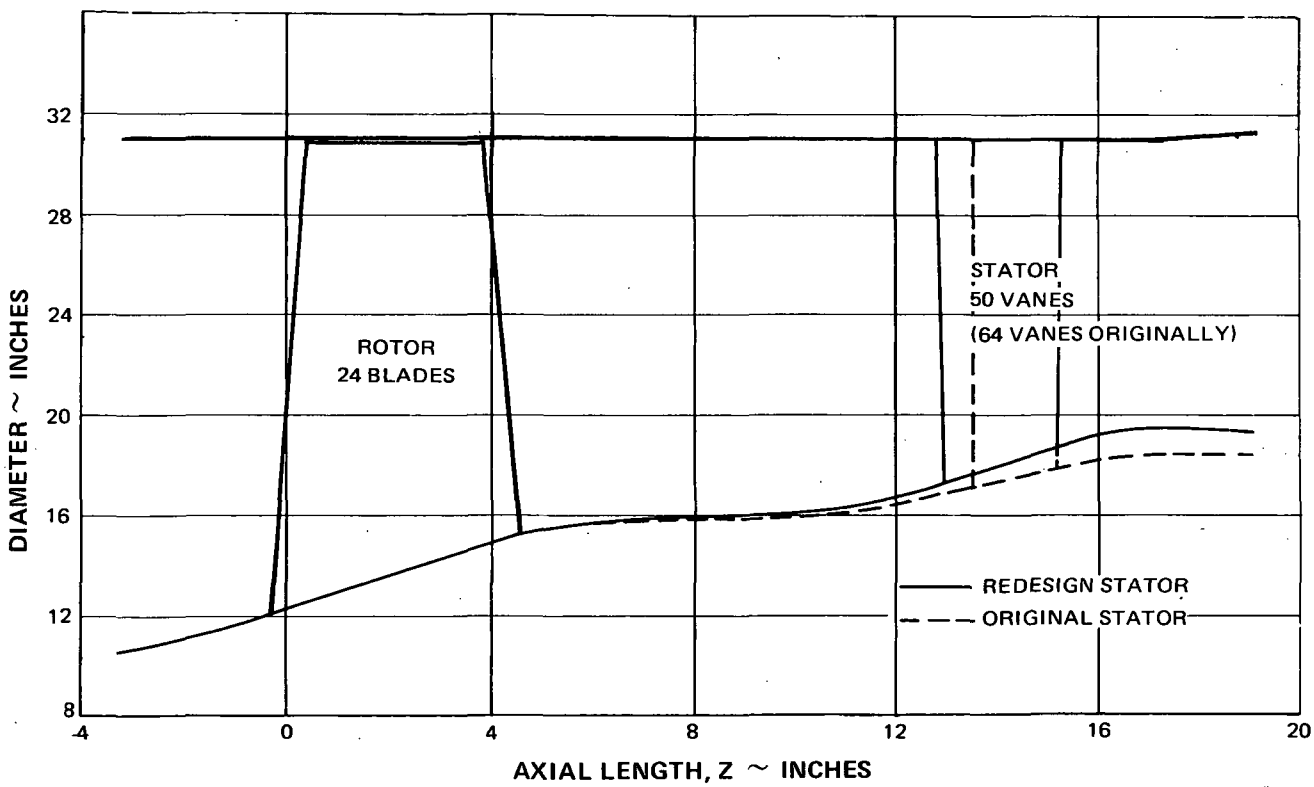


Figure 4 Flowpath, Redesign and Original

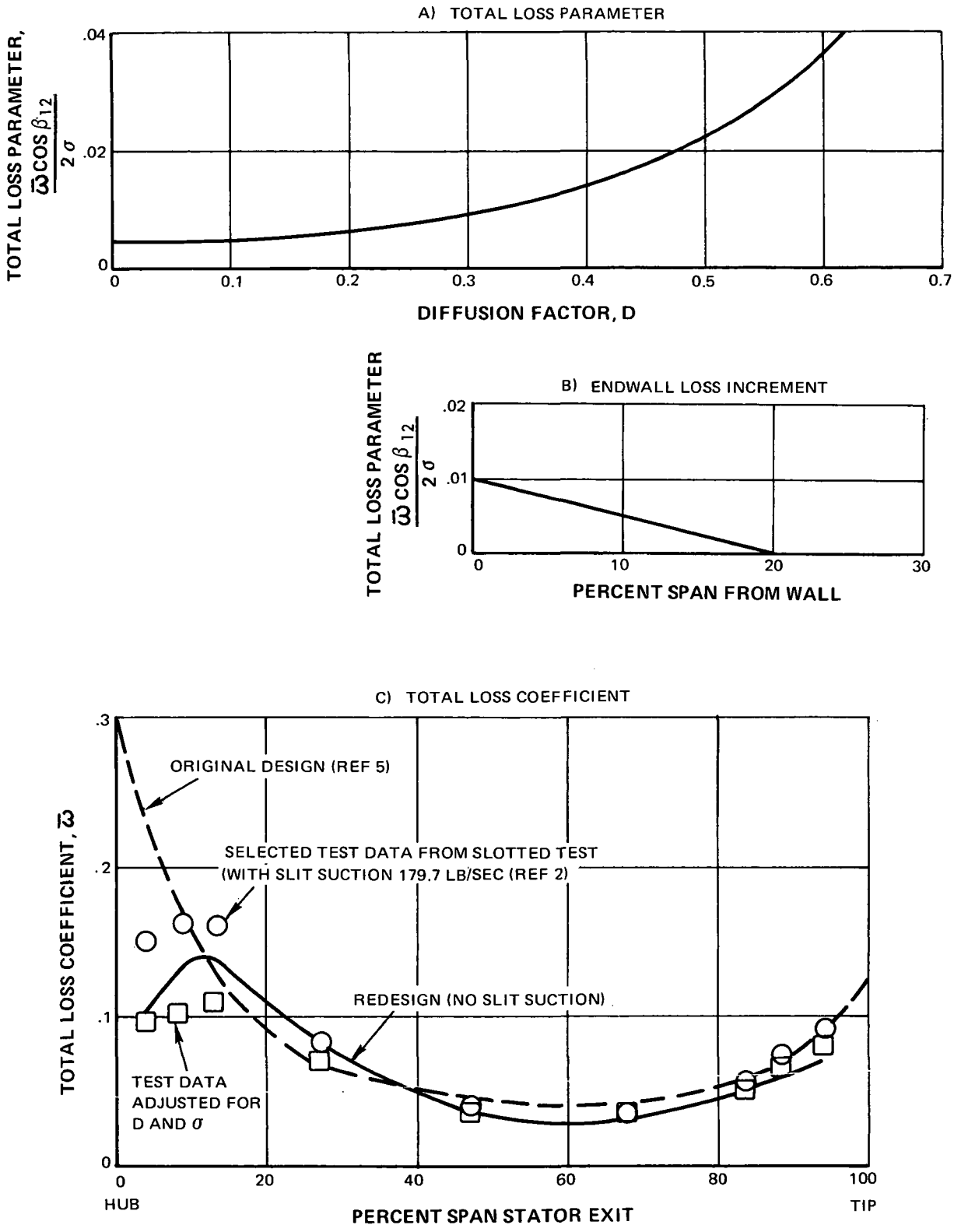


Figure 5 Stator Loss (Design) - *Percent Spans for the Data Have Been Calculated From the Stator Exit Diameters Listed With the Blade Element Data*

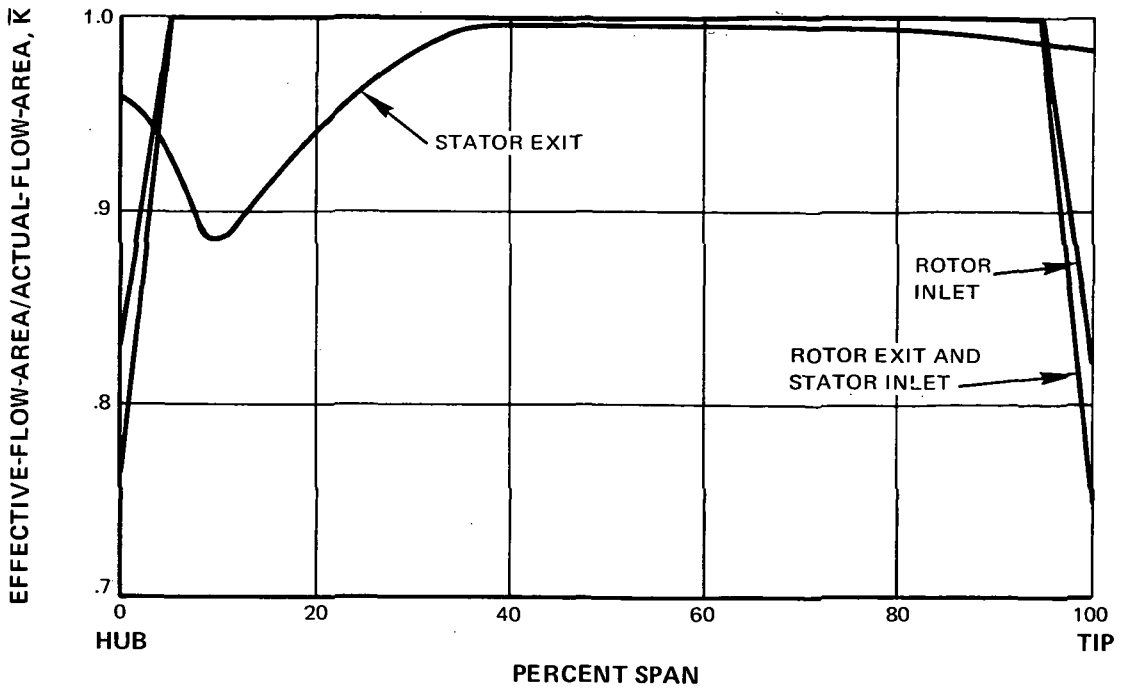


Figure 6 Blockage Factors for Redesigned Flowpath

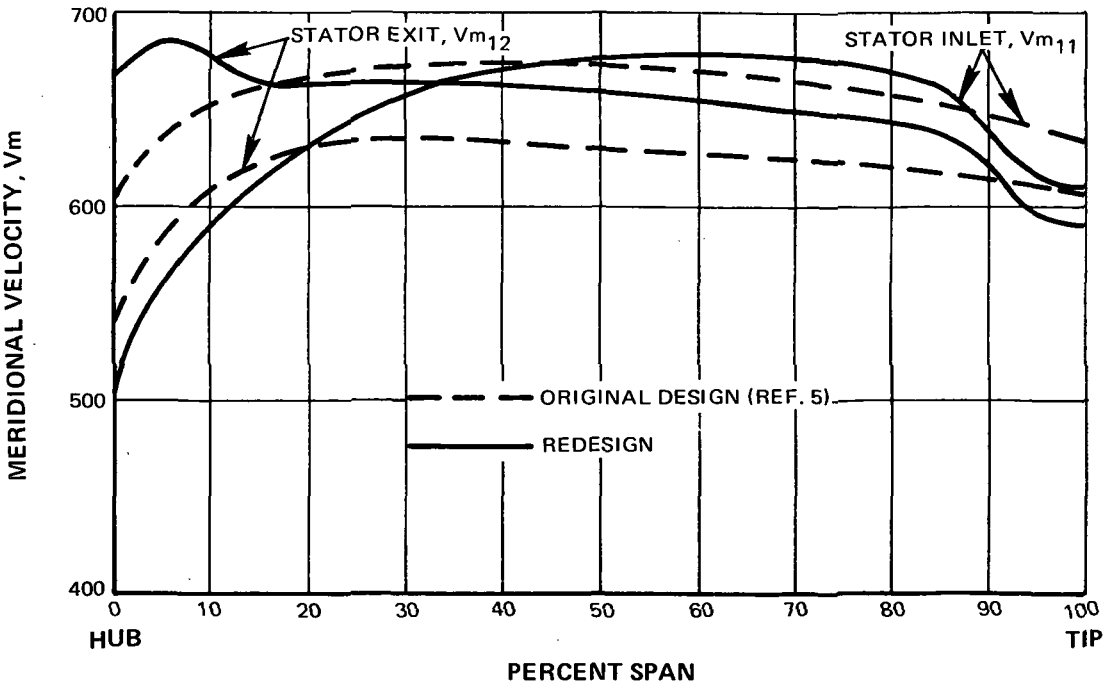


Figure 7 Stator Meridional Velocity (Design)

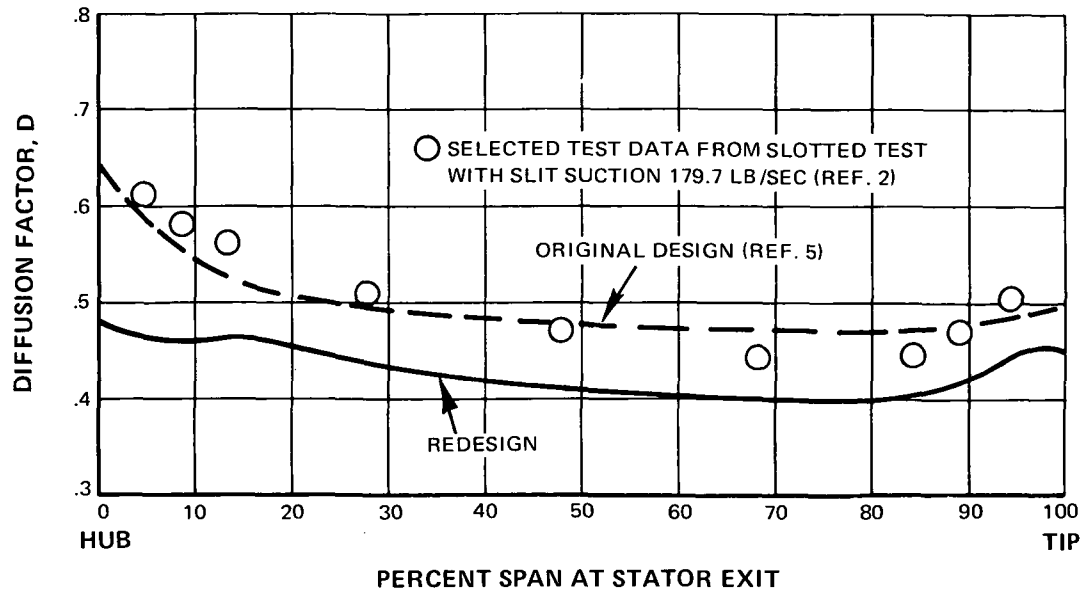


Figure 8 Stator Diffusion Factor (Design) - *Percent Spans for the Data Have Been Calculated From the Stator Exit Diameters Listed With the Blade Element Data*

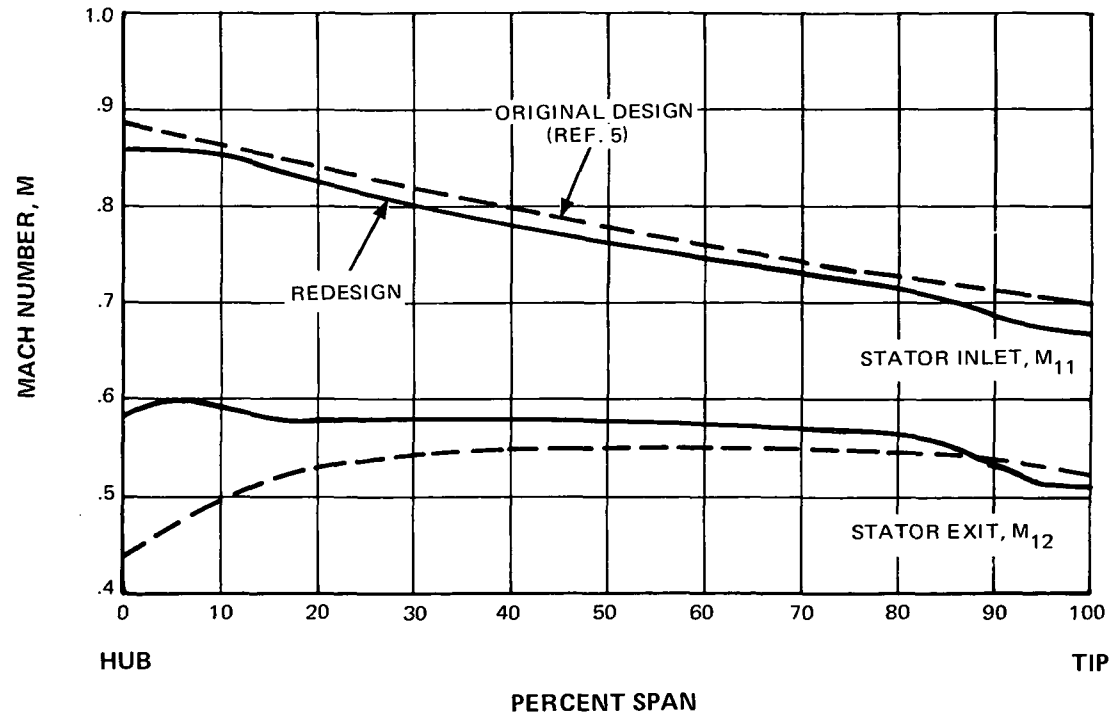


Figure 9 Stator Mach Numbers (Design)

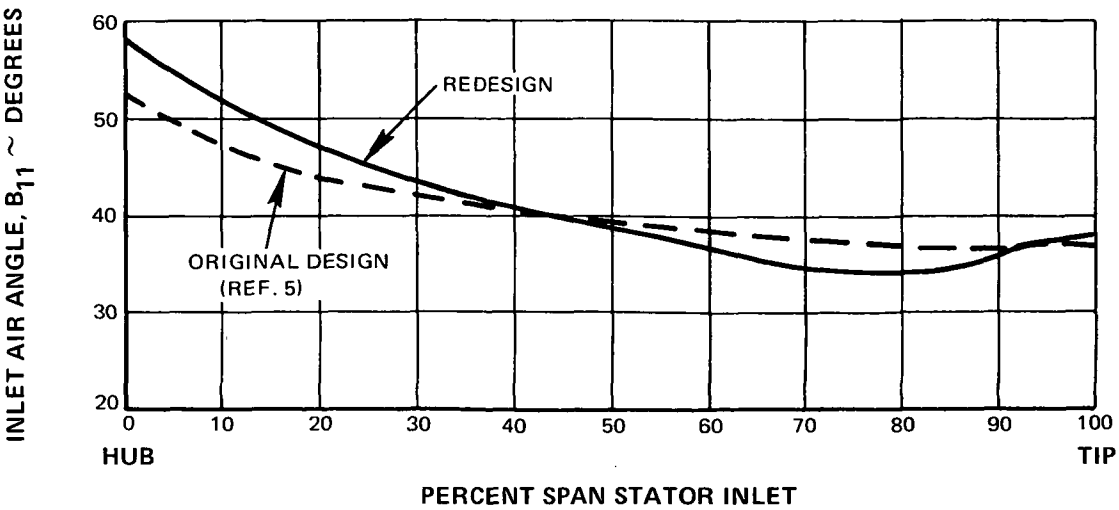


Figure 10 Stator Inlet Air Angle (Design)

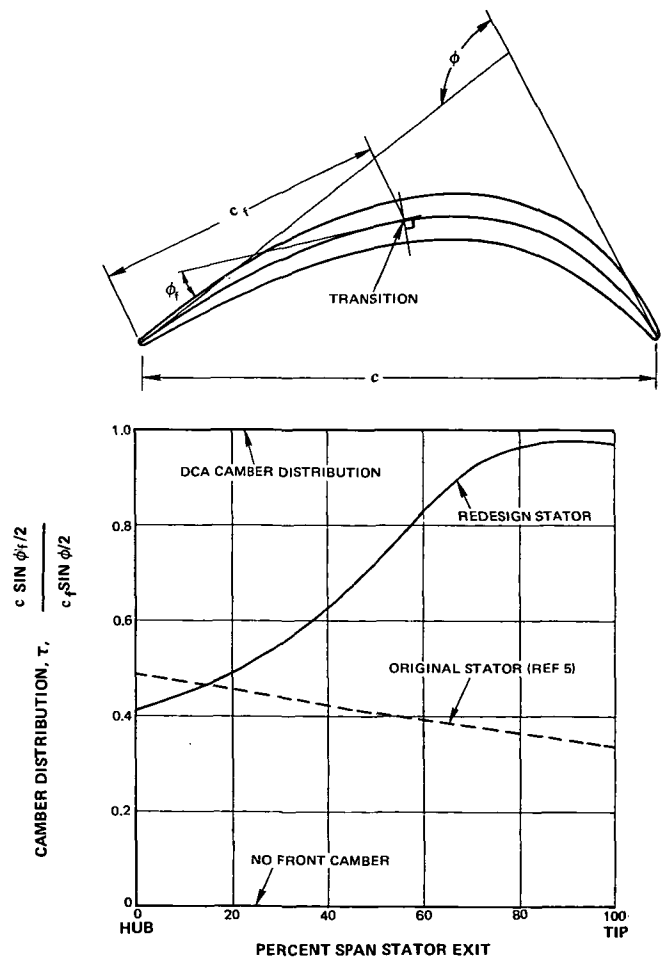


Figure 11 Stator Airfoil Camber Distribution Parameter as a Function of Span

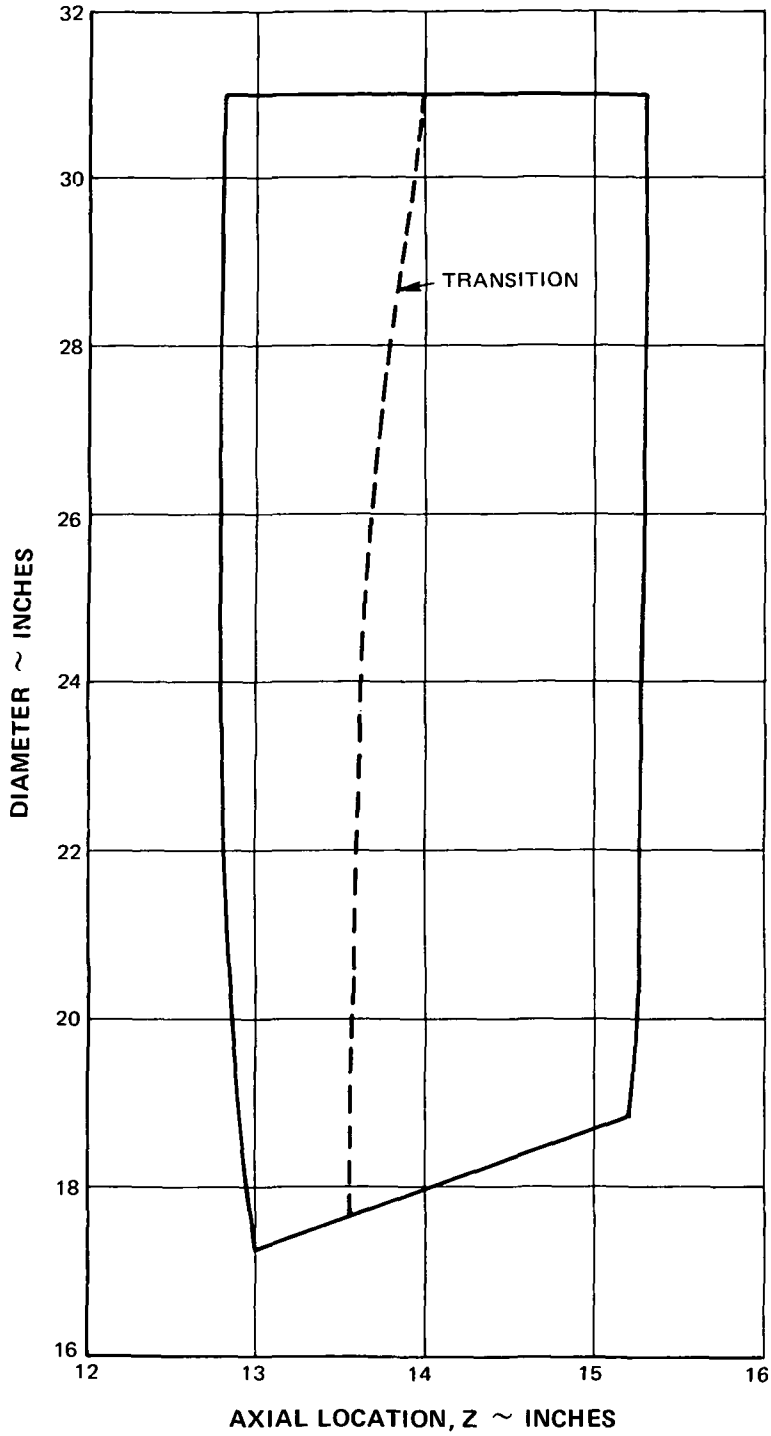


Figure 12 Axial Projection of Stator, Showing Location of Transition From Front to Rear Sections of the MCA Airfoils

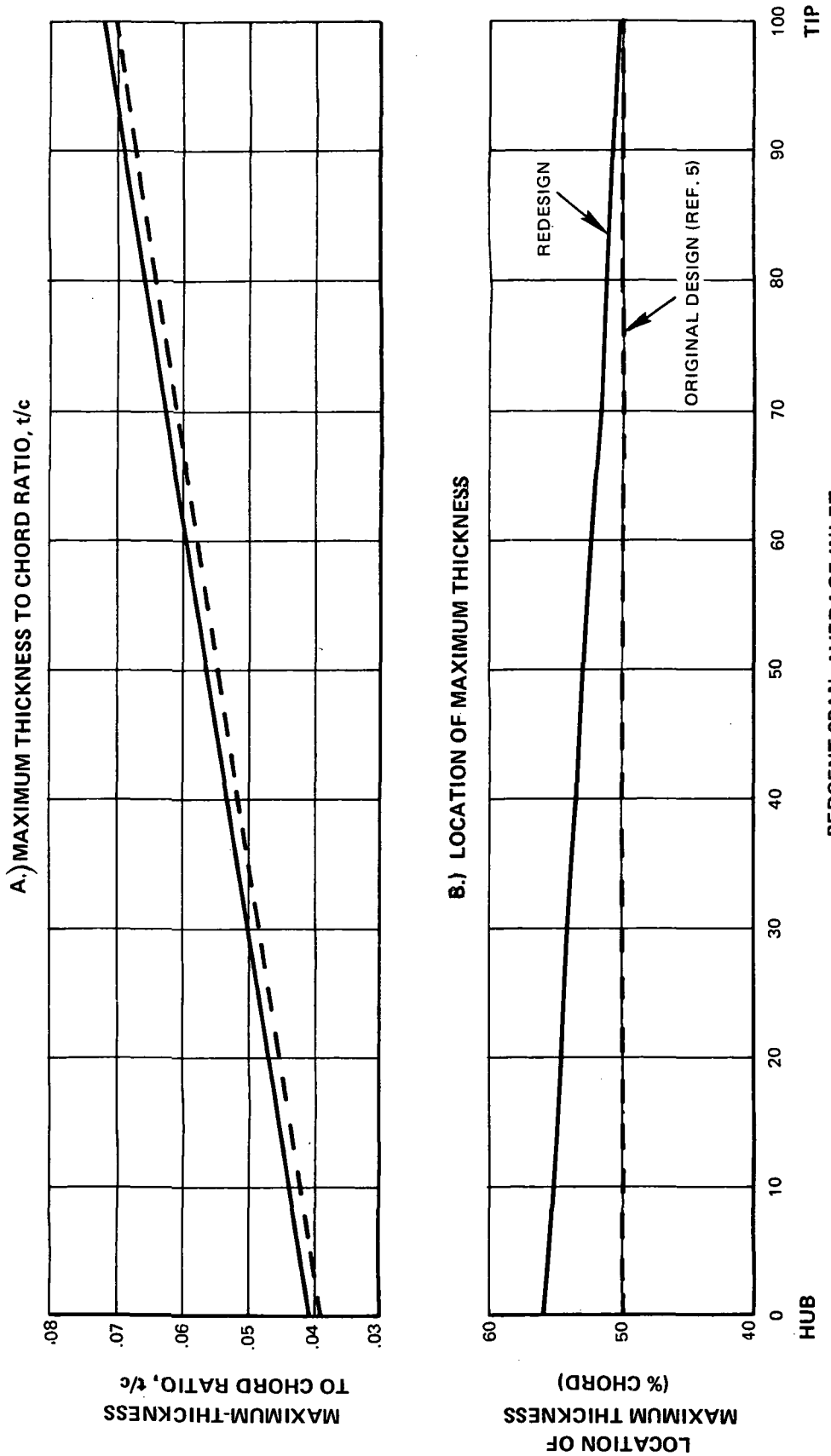


Figure 13 Stator Maximum Thickness and Chordwise Location as a Function of Span

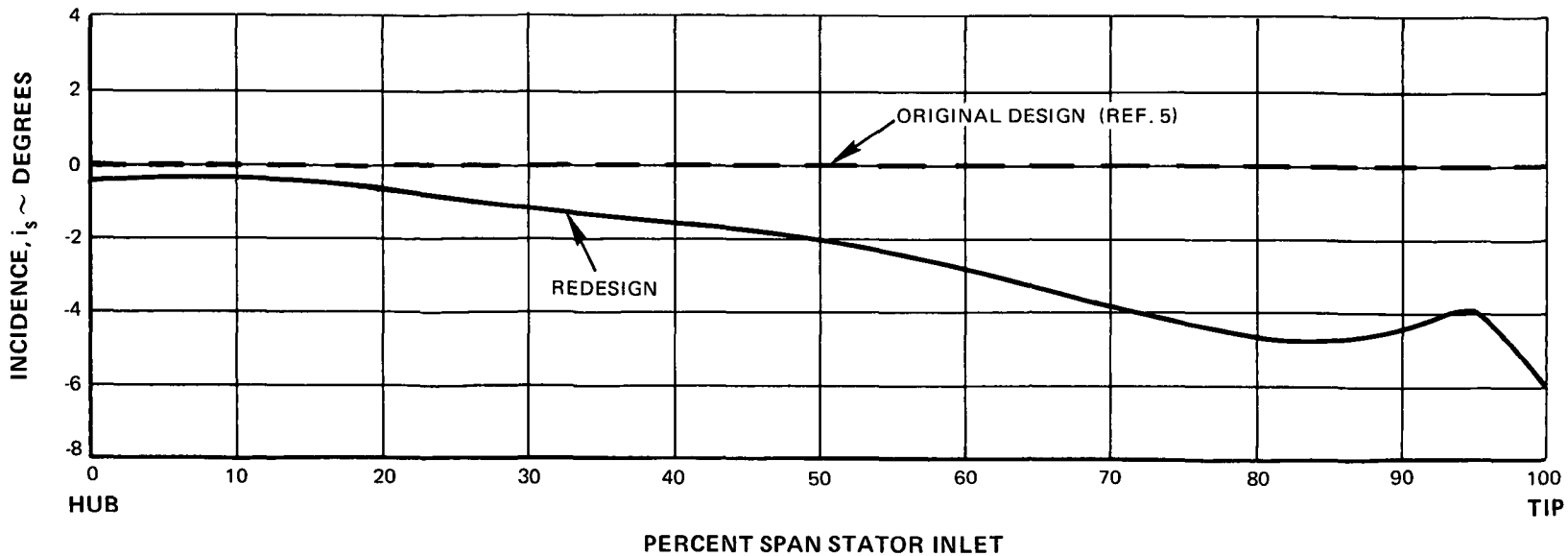


Figure 14 Stator Incidence to Suction Surface (Design)

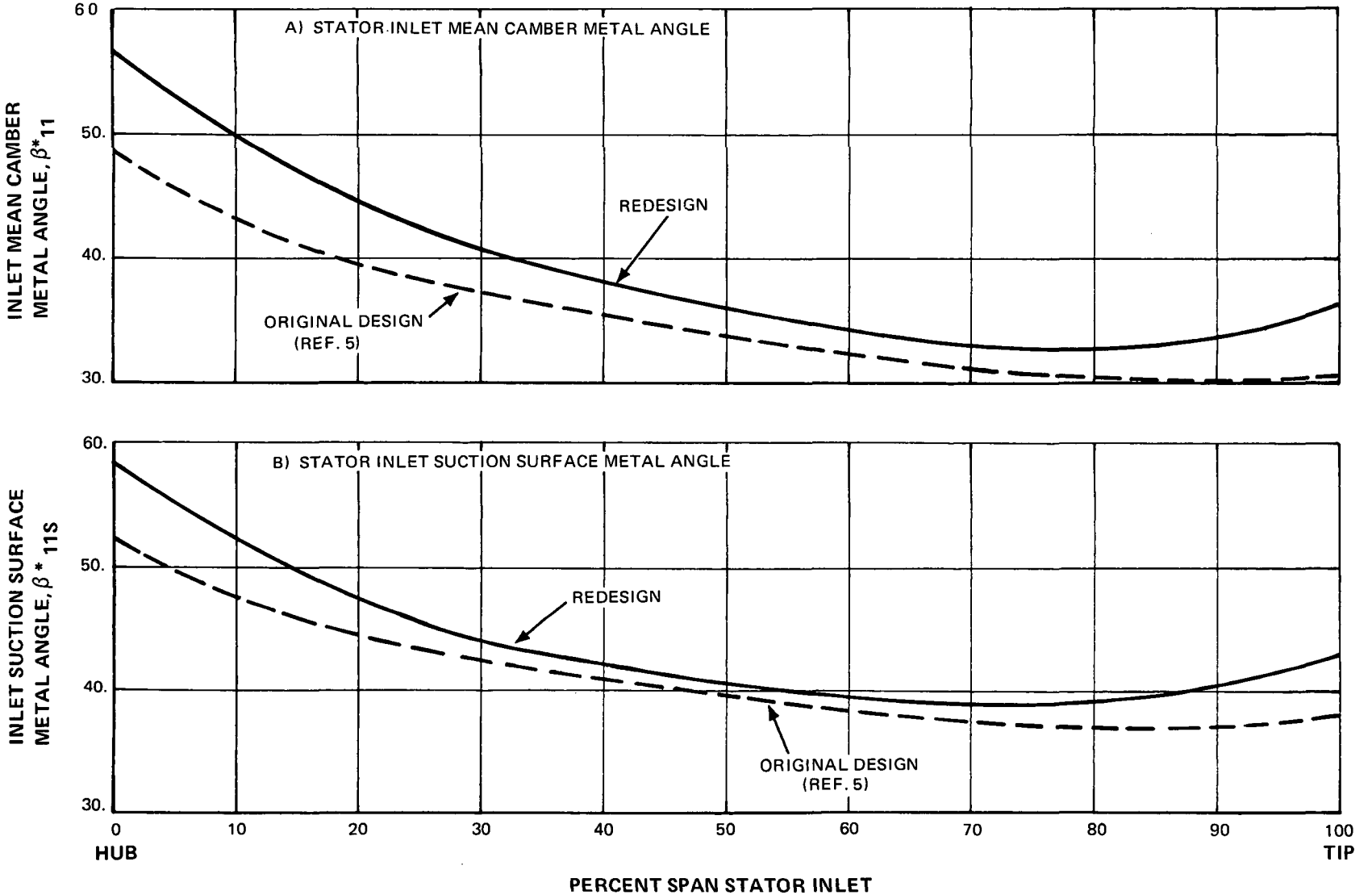


Figure 15 Stator Inlet Mean Camber and Suction Surface Metal Angles

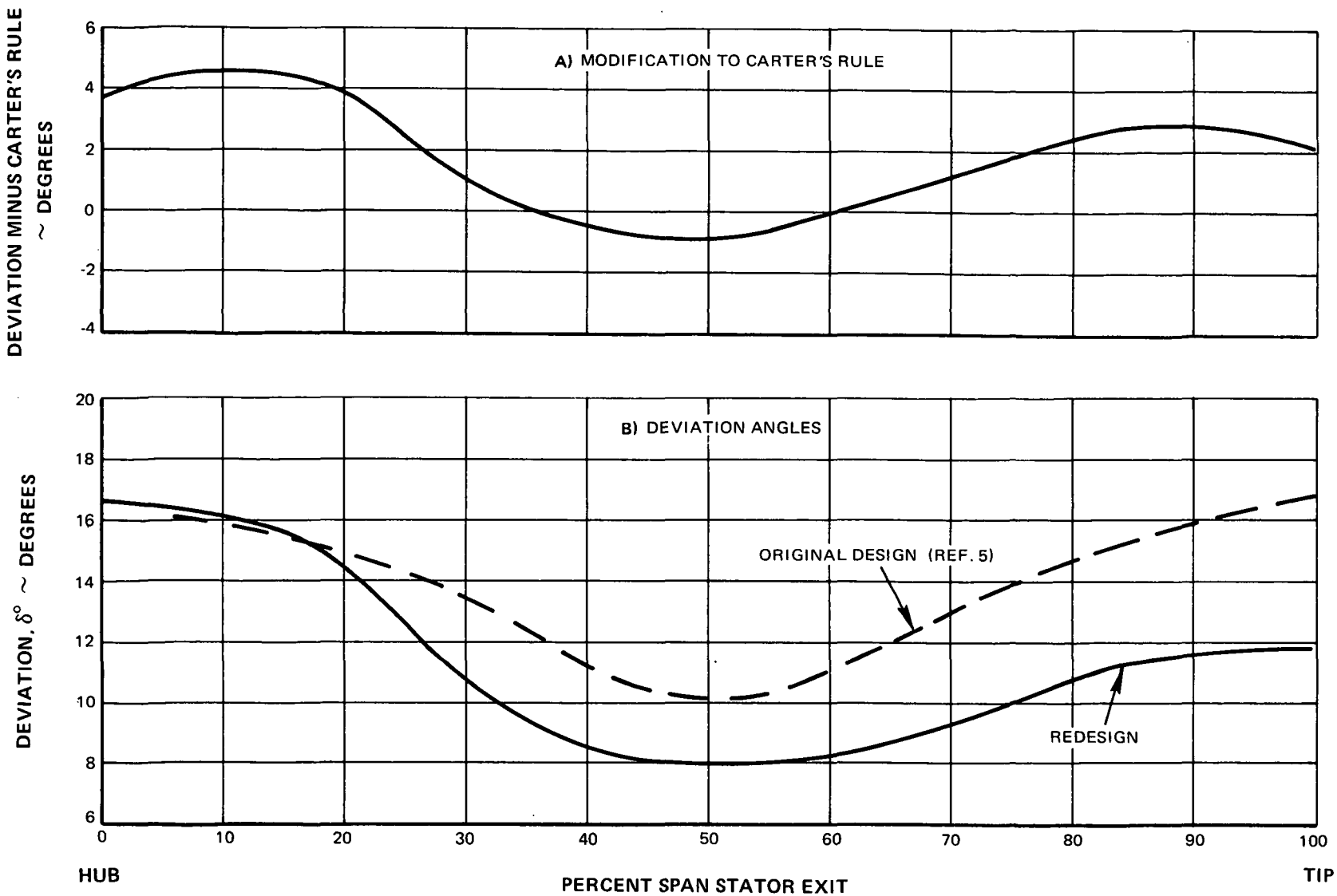


Figure 16 Stator Deviation Angle (Design)

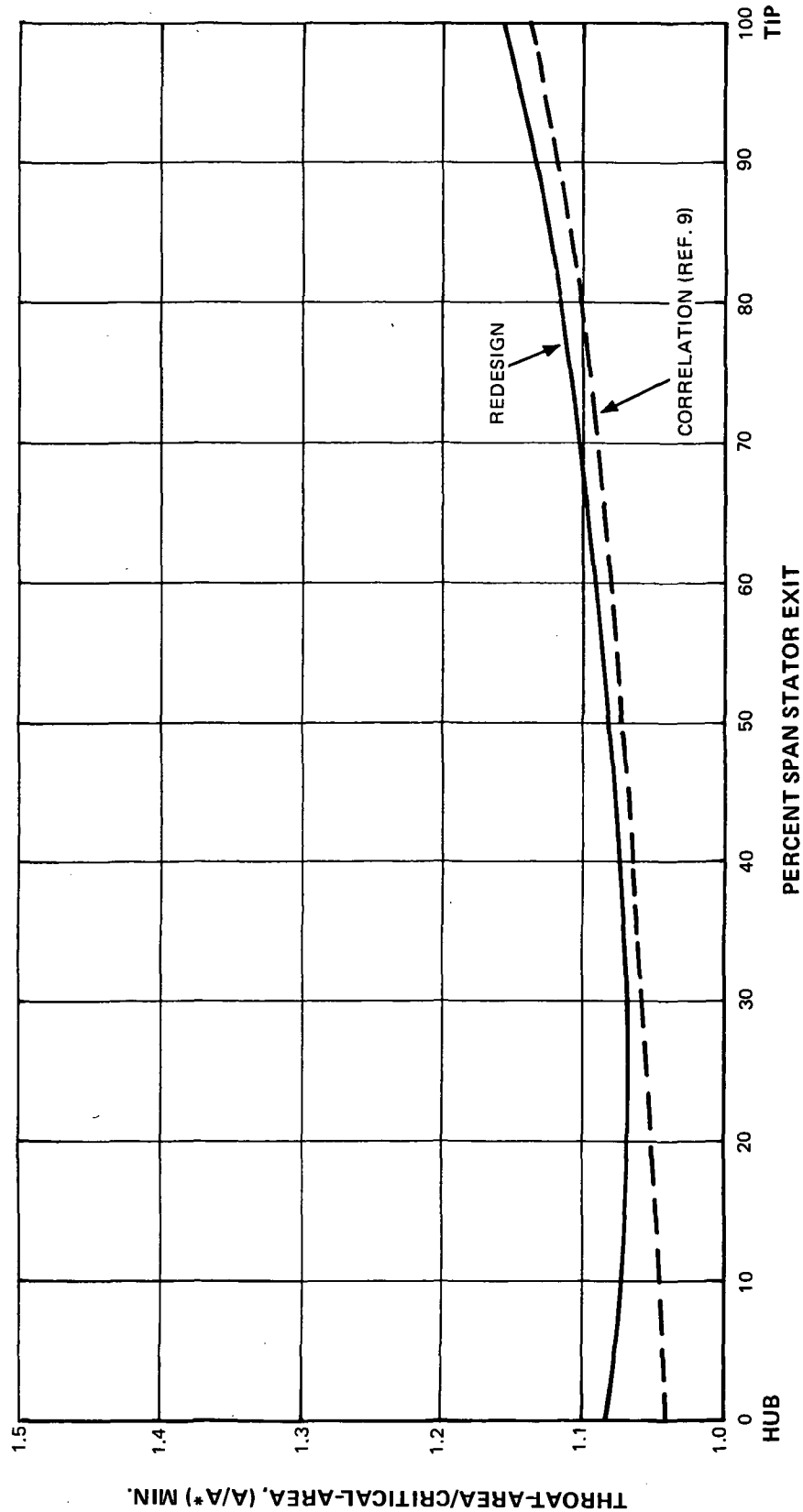


Figure 17 Stator Critical Area Distributing, (A/A*) min,(Design)

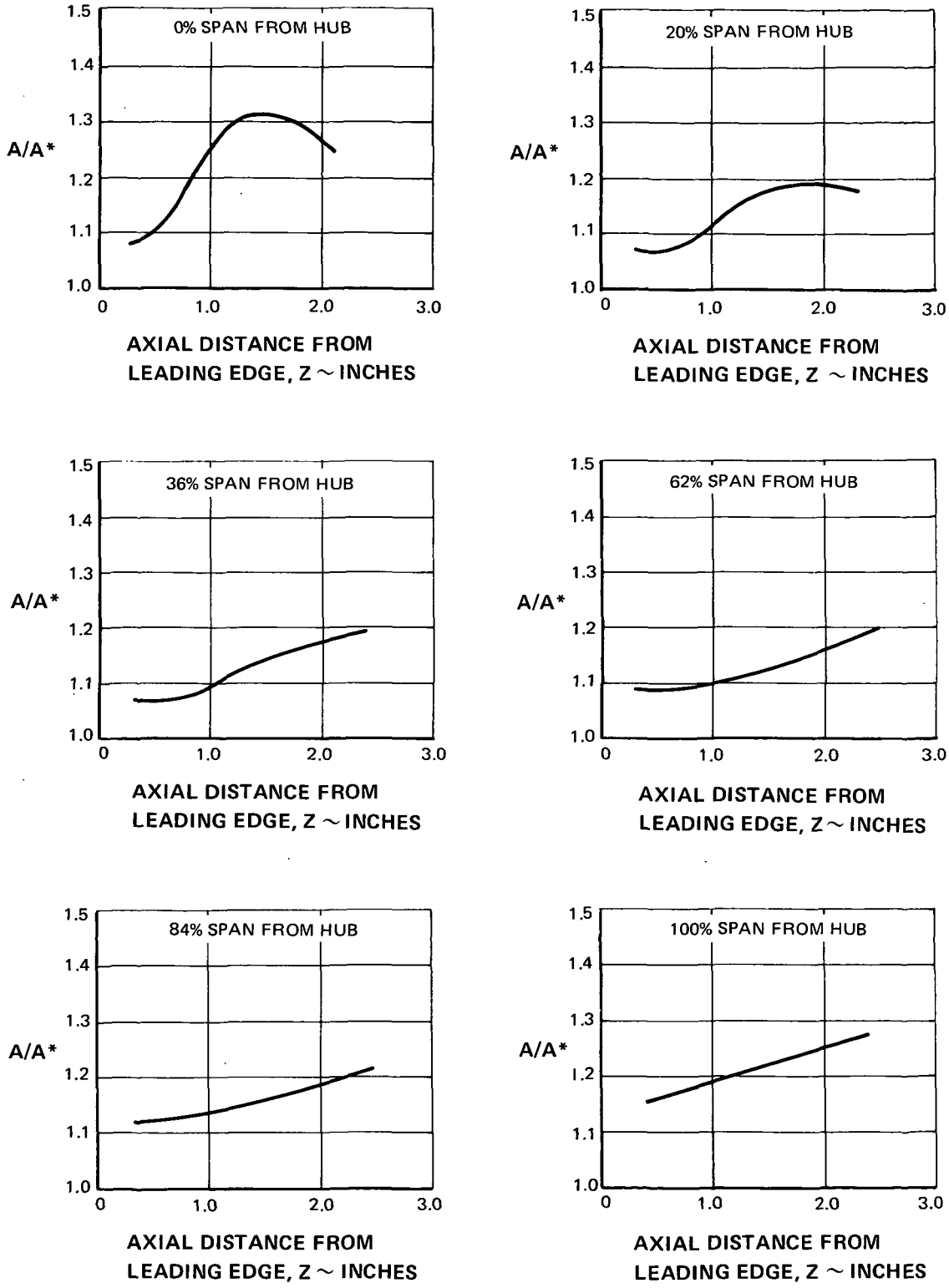


Figure 18 Stator Channel Area Distribution, A/A* (Design)

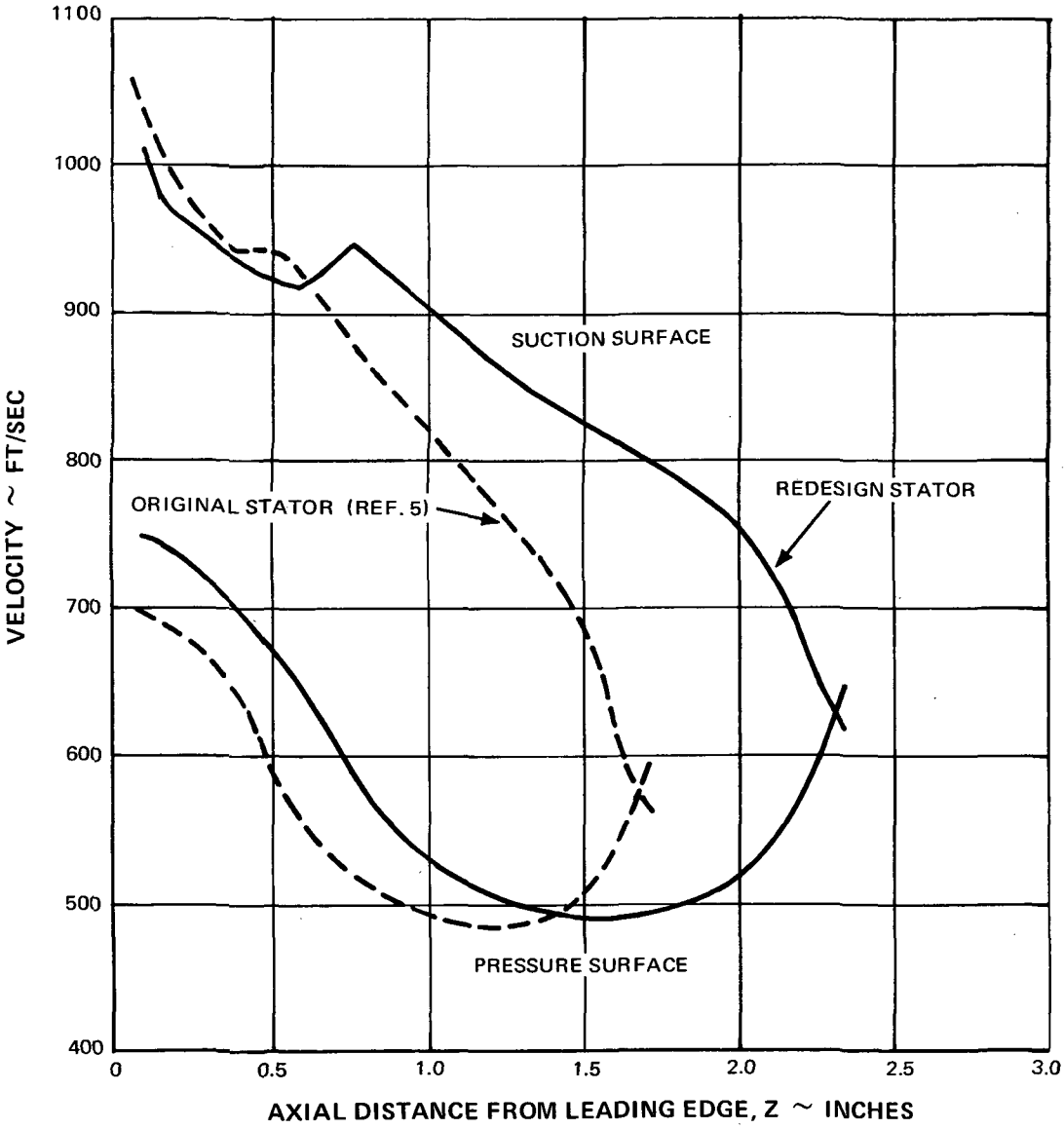


Figure 19 Velocity Distribution on Stator Surface at 10 Percent Span From Hub

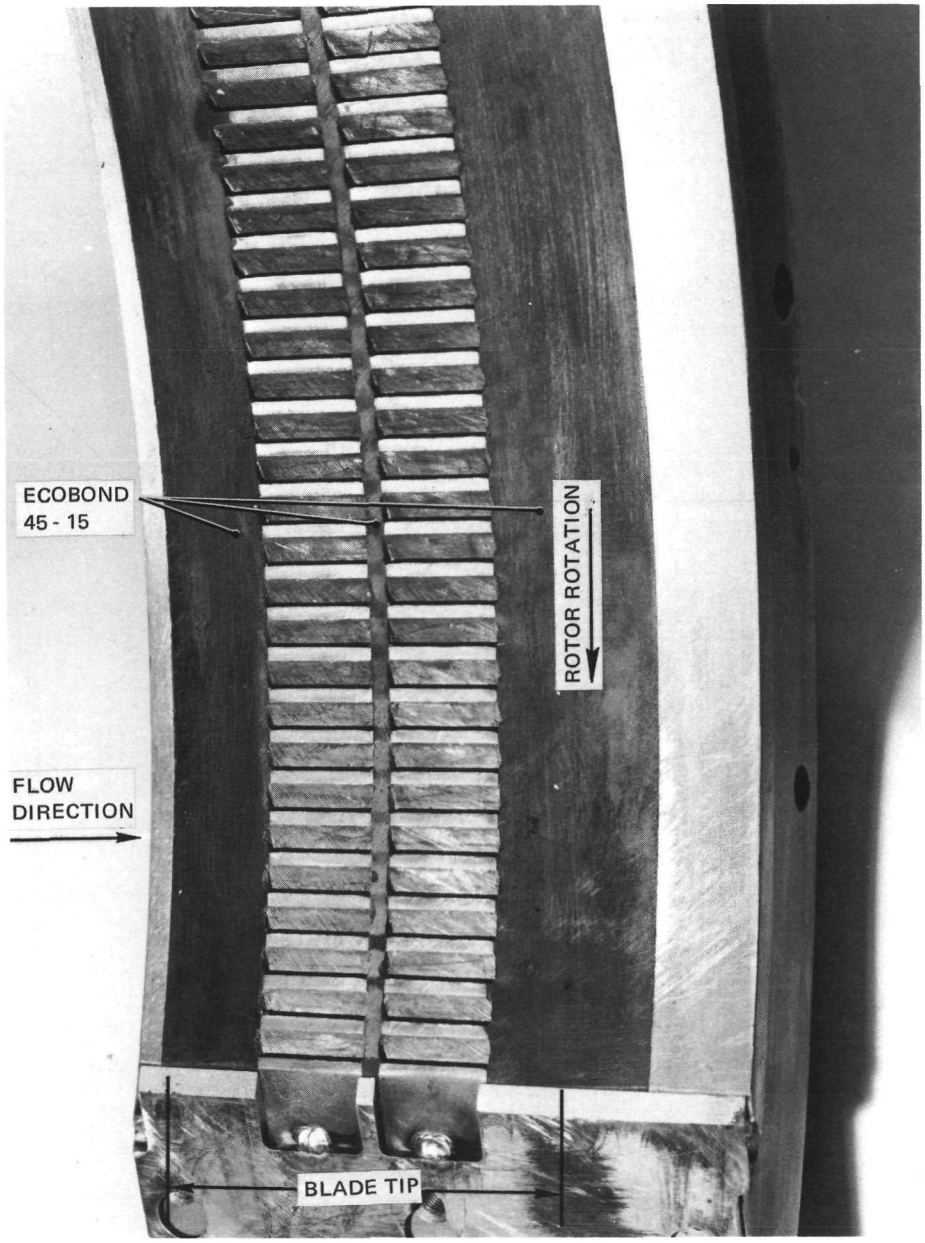


Figure 20 Skewed Slots Rotor Tip Casing Treatment

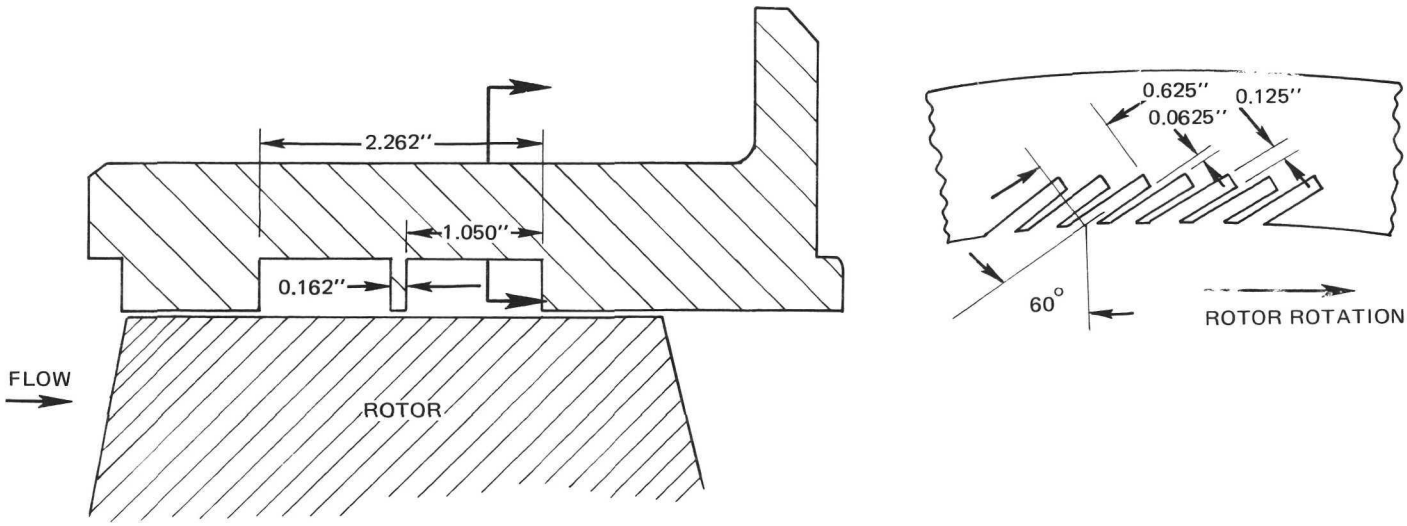


Figure 21 Schematic of Skewed Slots Rotor Tip Casing Treatment

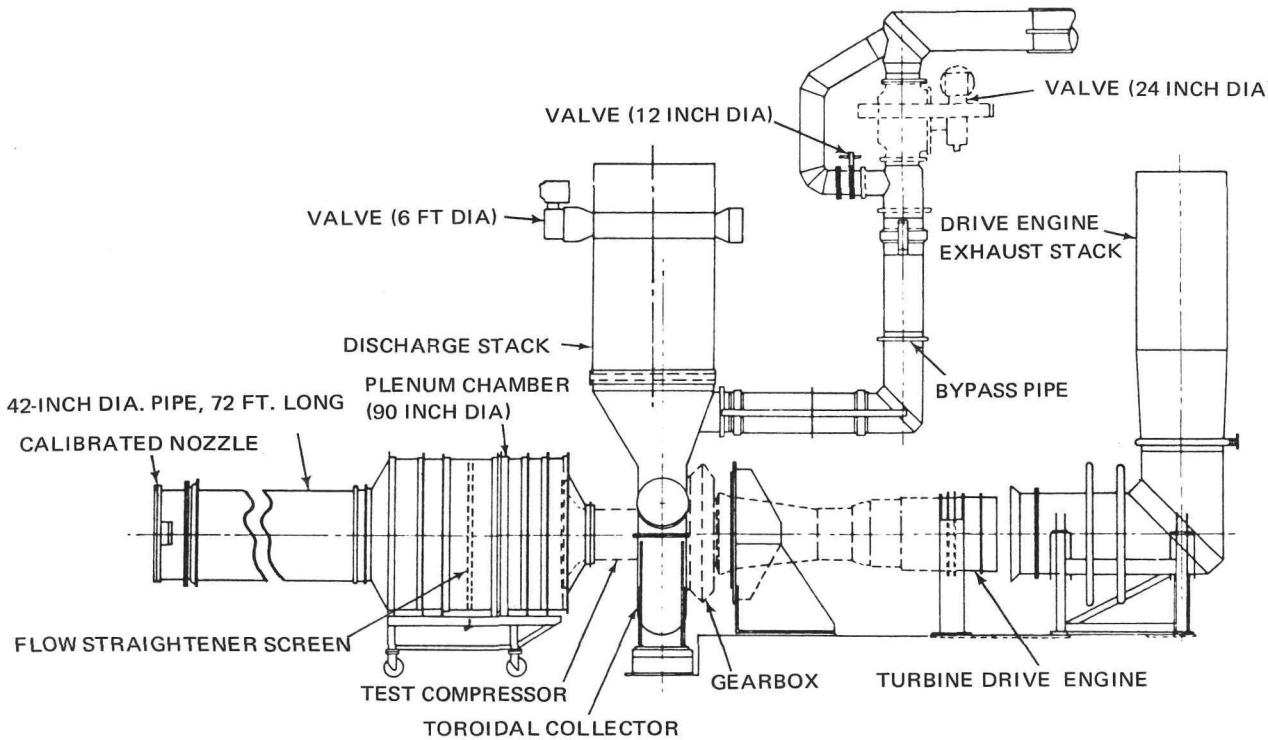


Figure 22 Compressor Test Facility

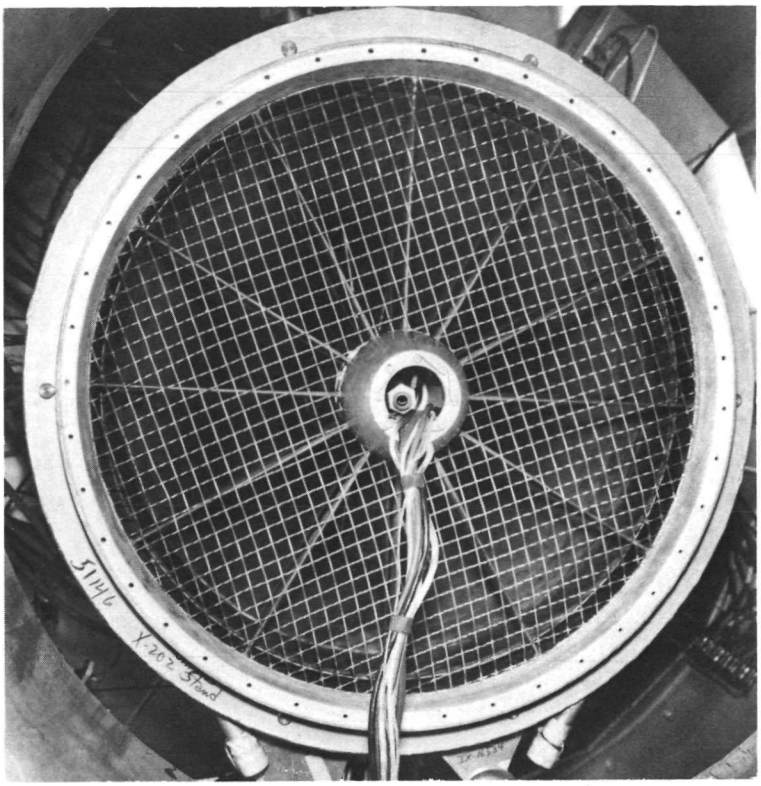


Figure 23 Test Compressor Inlet With Distortion Support Screen Installed

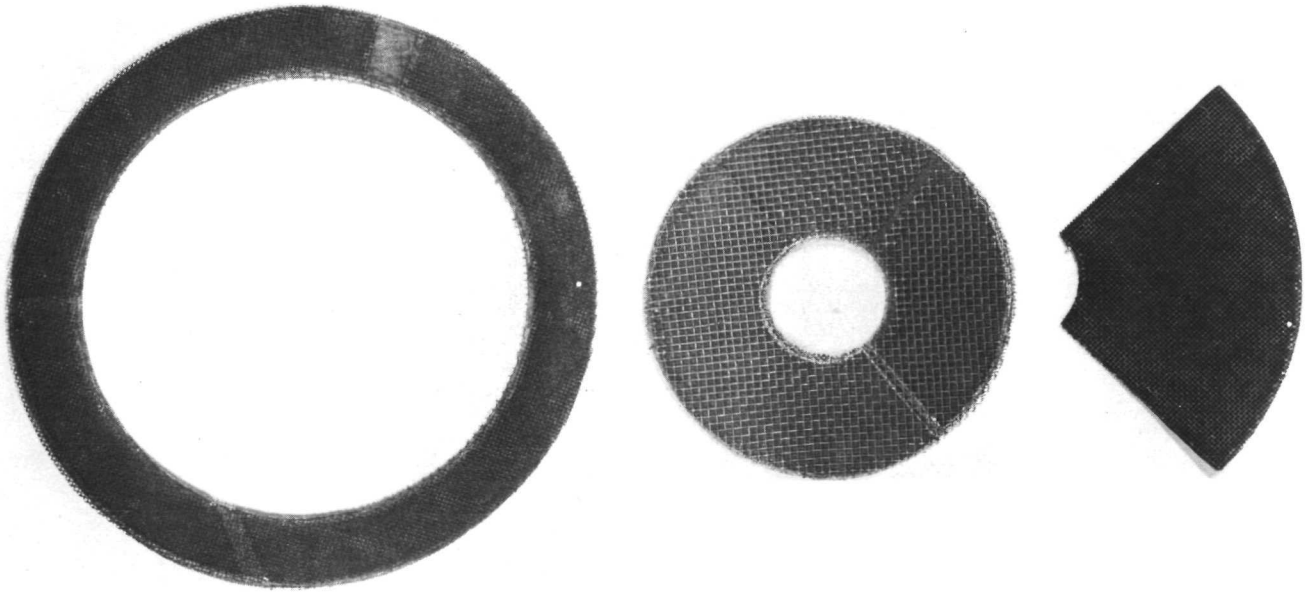


Figure 24 Distortion Screens

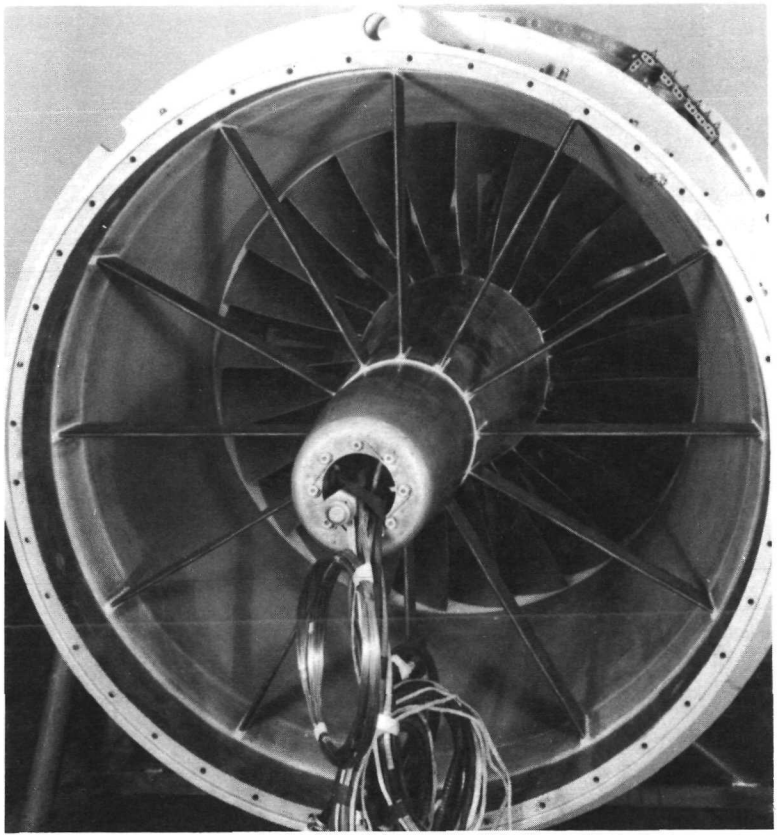


Figure 25 Test Compressor Inlet Configuration for Performance Testing With Uniform Inlet Flow

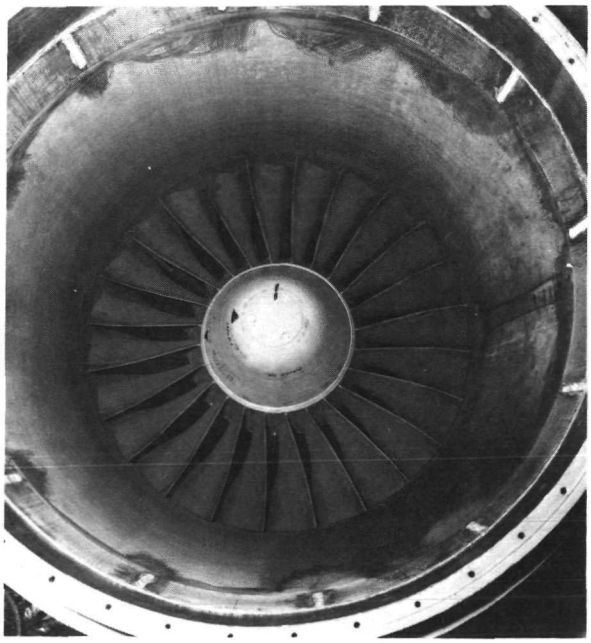
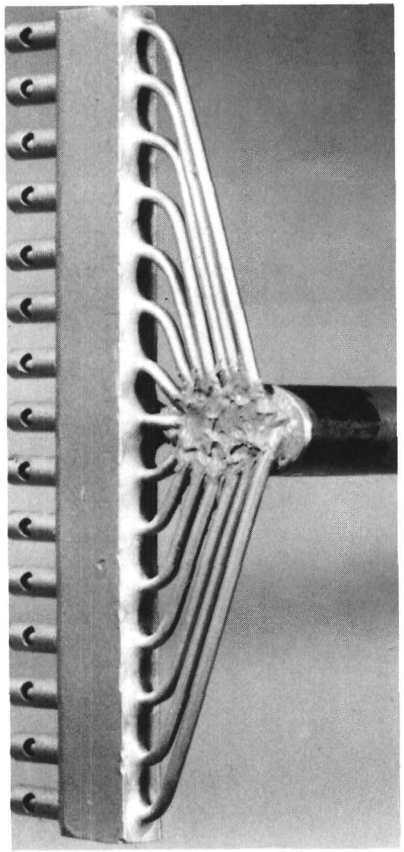
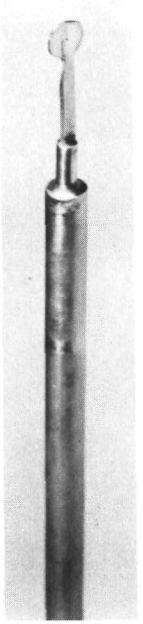


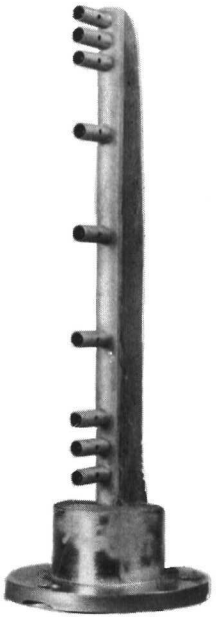
Figure 26 Test Compressor Inlet Configuration for Noise Measurements



TRAVERSABLE TOTAL PRESSURE WAKE RAKE



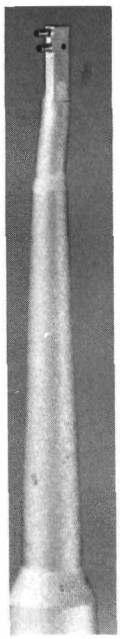
TRAVERSABLE DISK PROBE



TEMPERATURE RAKE



SHIELDED TOTAL PRESSURE RAKE



TRAVERSABLE COMBINATION PROBE



HOT FILM PROBE (1 ELEMENT)

Figure 27 Compressor Instrumentation

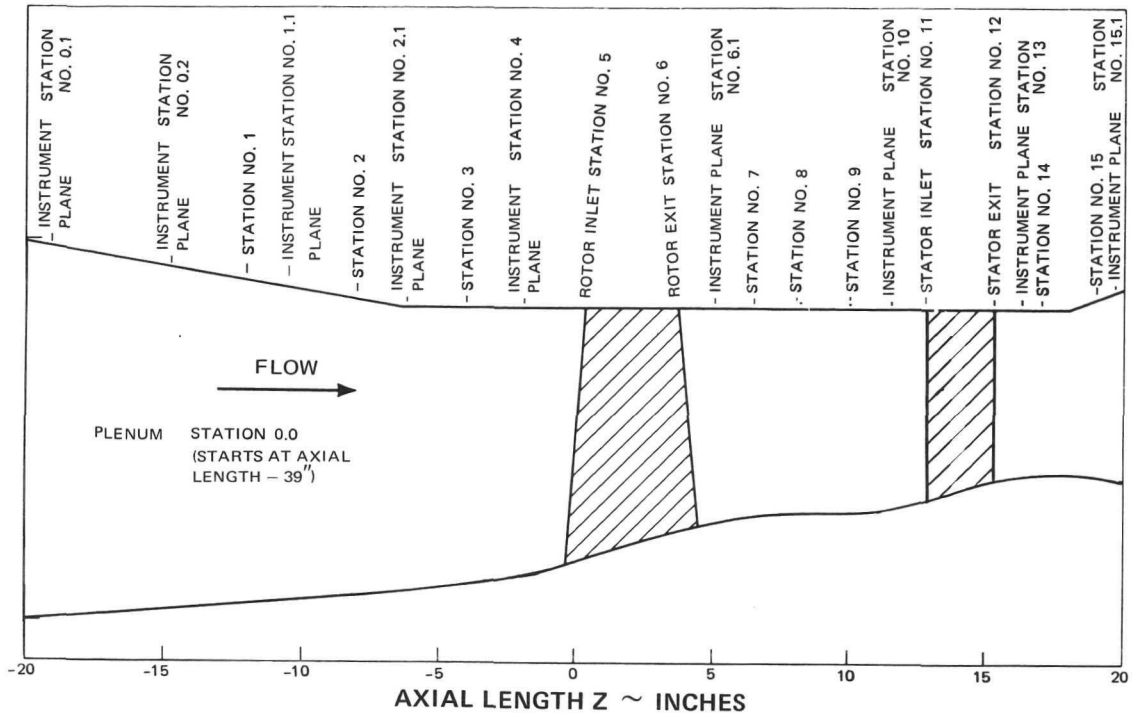


Figure 28 Axial Location of Instrumentation

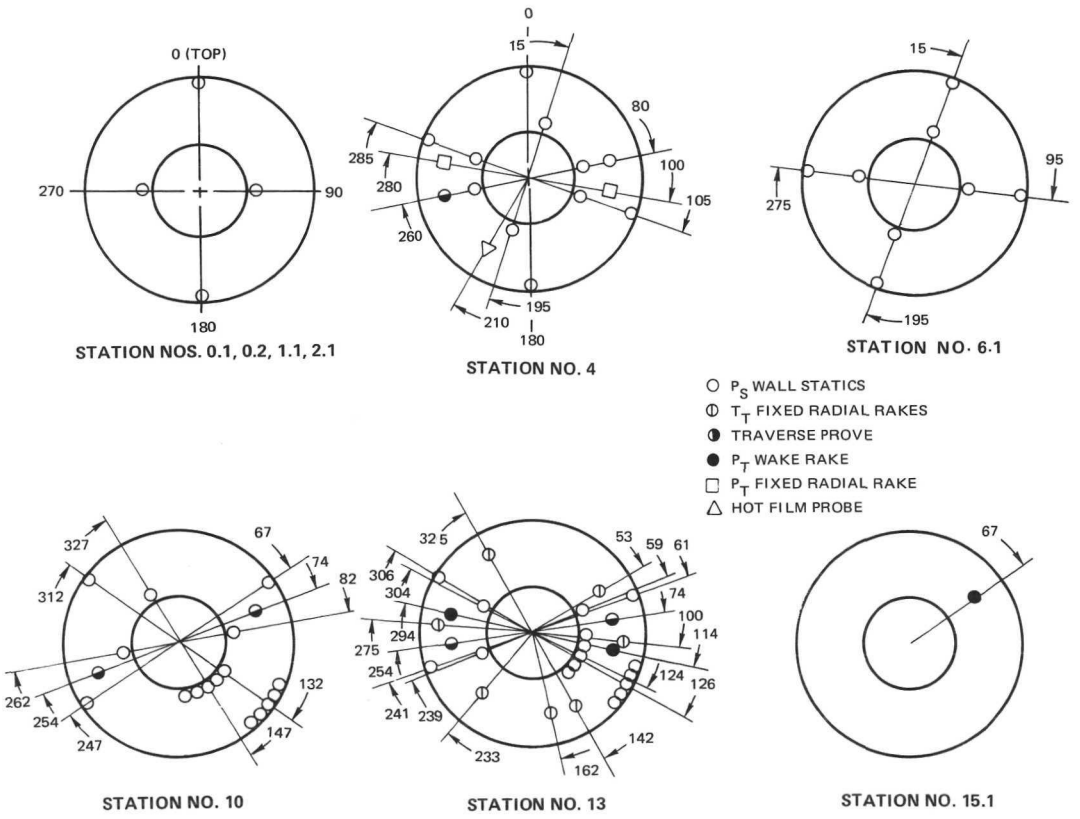


Figure 29 Circumferential Location of Instrumentation (Viewed Downstream, Rotation is Counterclockwise)

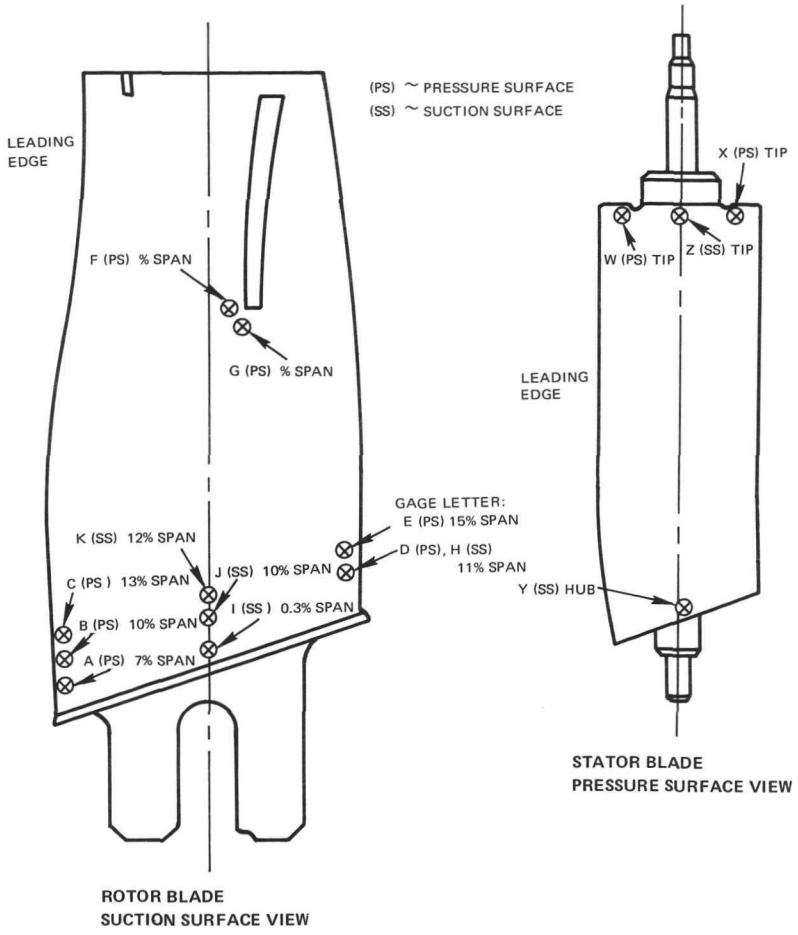


Figure 30 Strain Gage Locations on Rotor and Stator Blades

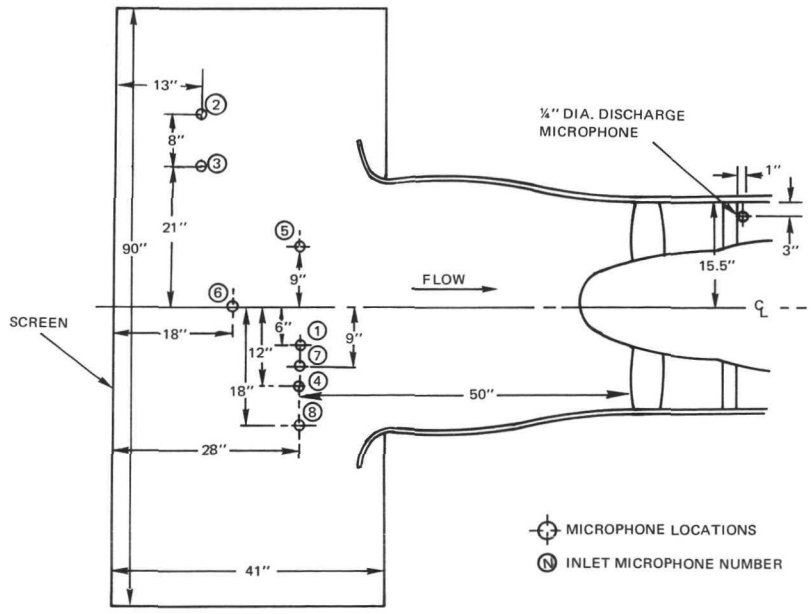


Figure 31 Acoustic Microphone Locations for Fan Noise Tests

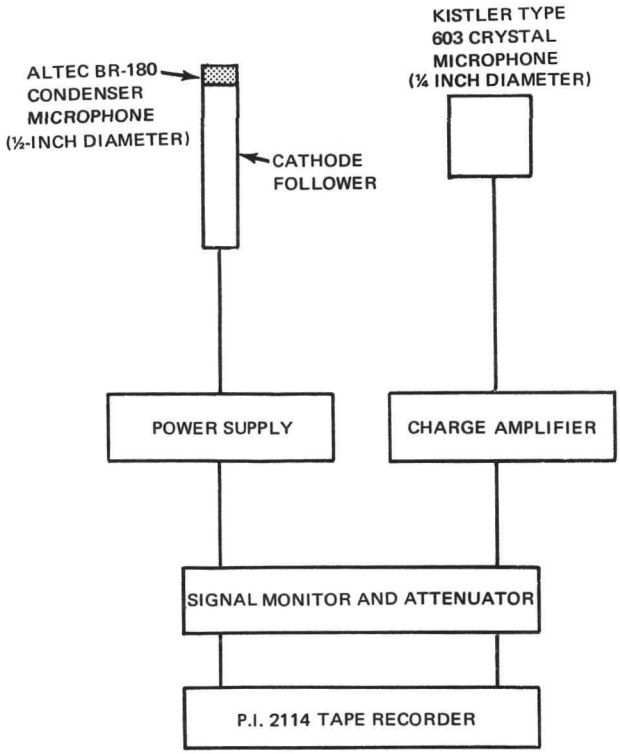


Figure 32 Acoustic Recording System for Fan Noise Tests

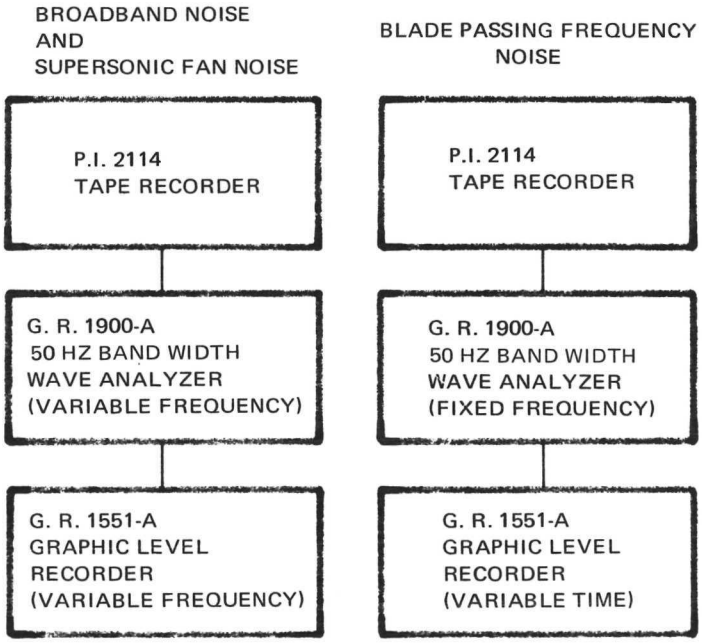


Figure 33 Acoustic Data-Reduction System

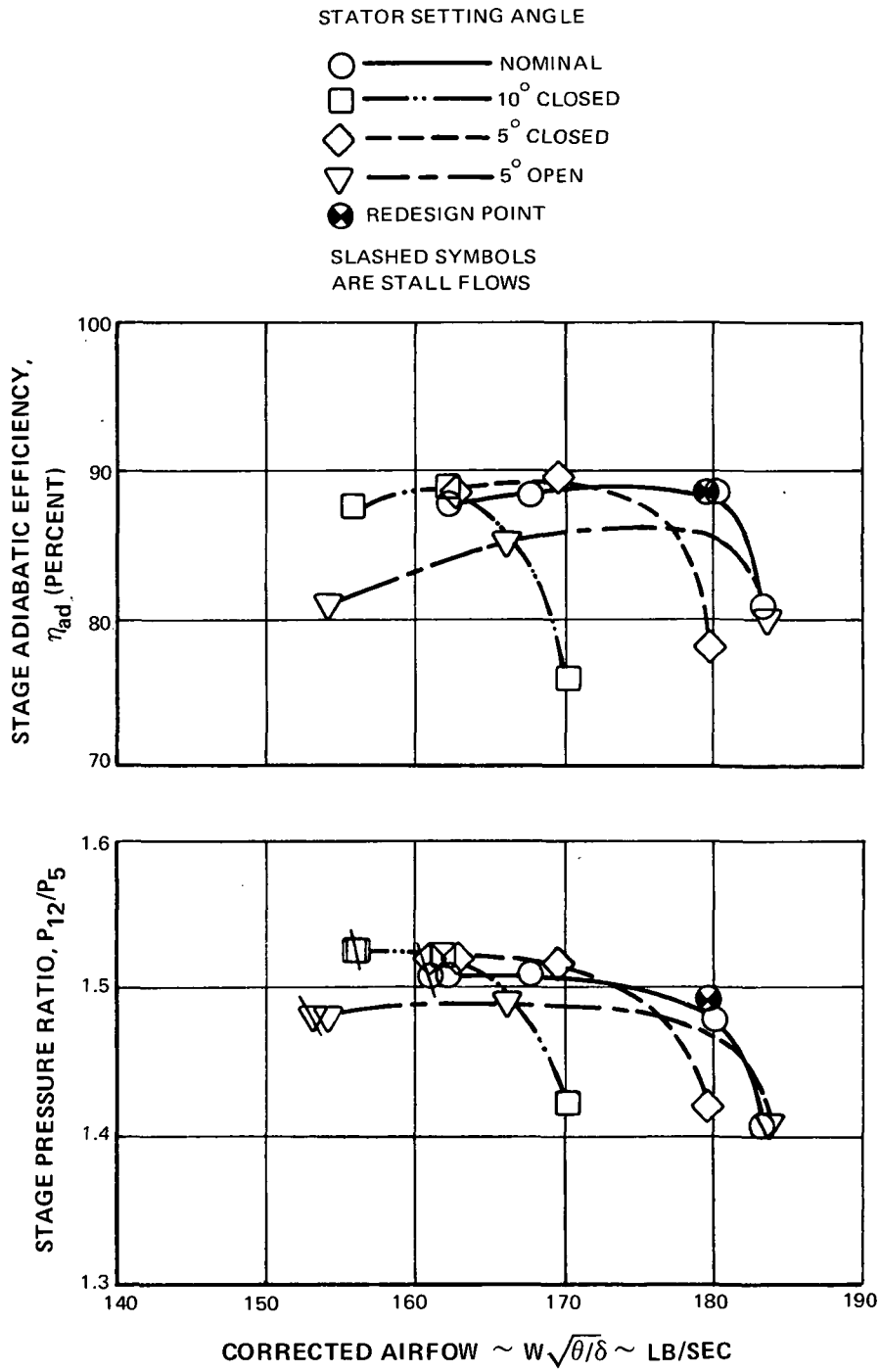


Figure 34 Overall Fan Stage Performance, Optimization Test at Design Speed

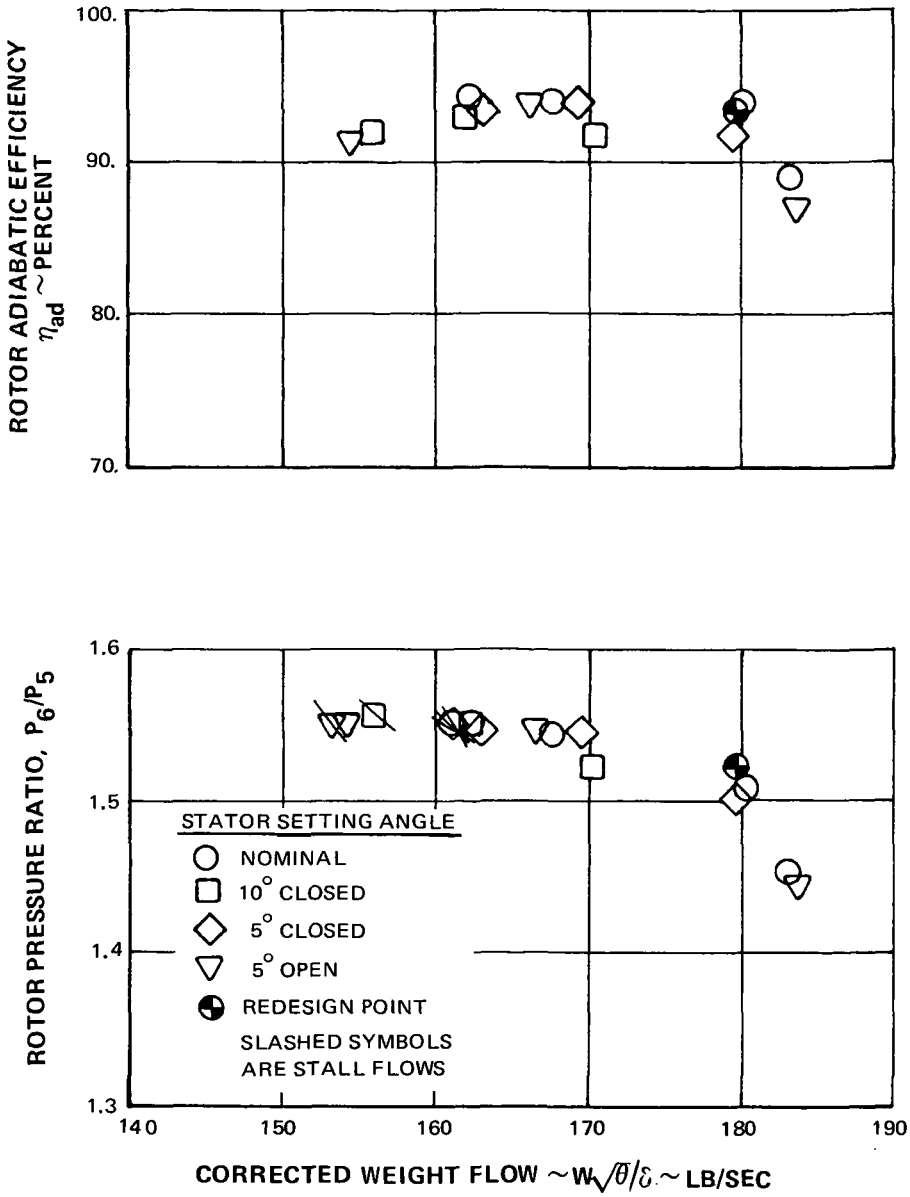


Figure 35 Overall Performance of Rotor, Optimization Test at Design Speed

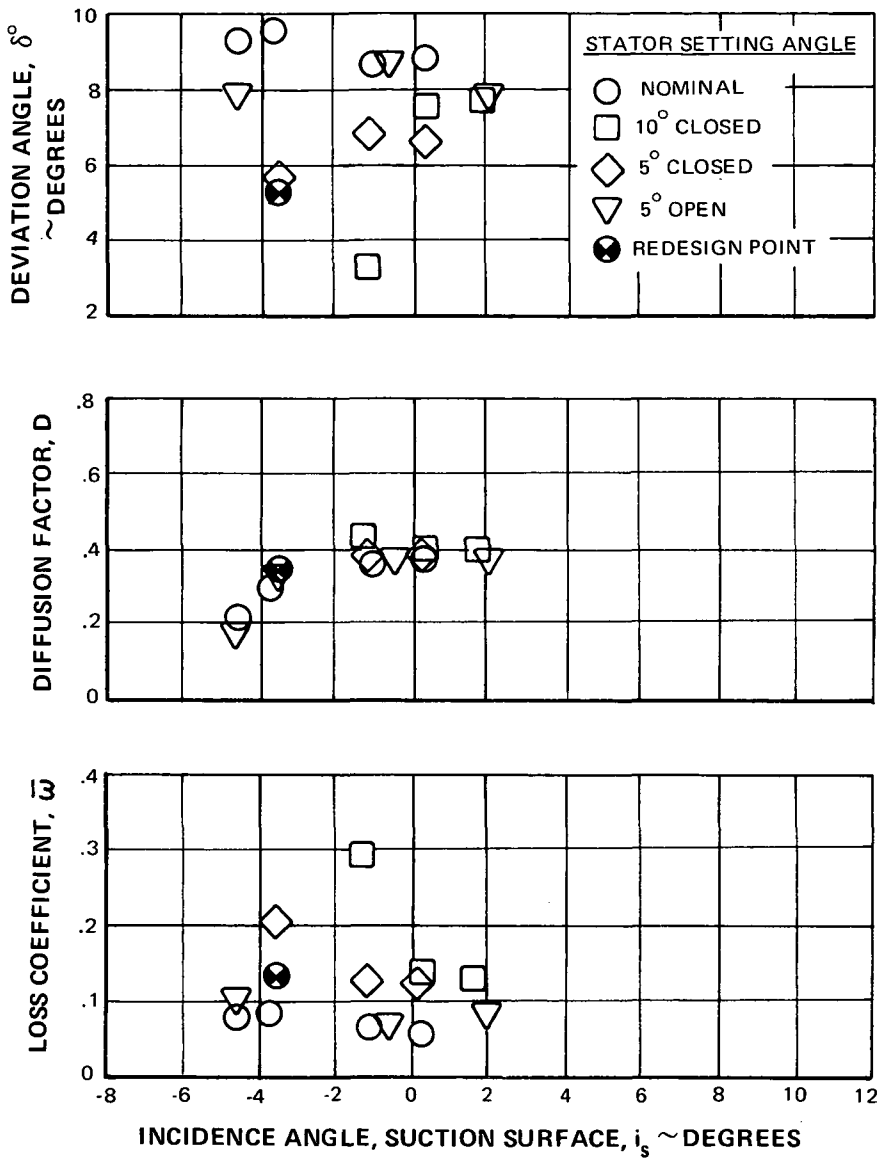


Figure 36a Slotted Rotor Blade Element Performance, Optimization Test 10 Percent Span From Hub

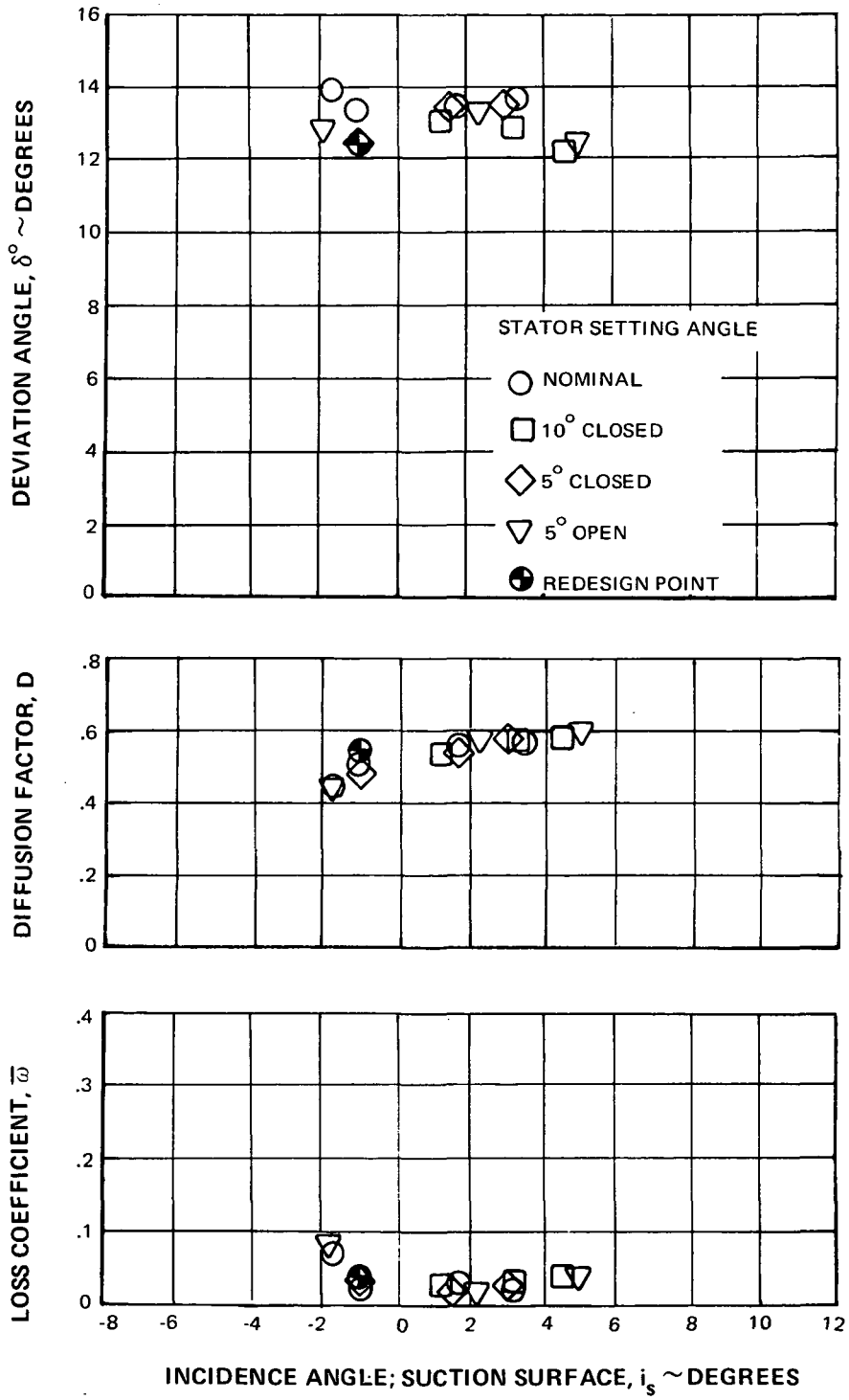


Figure 36b Slotted Rotor Blade Element Performance, Optimization Test – 50 Percent Span From Hub

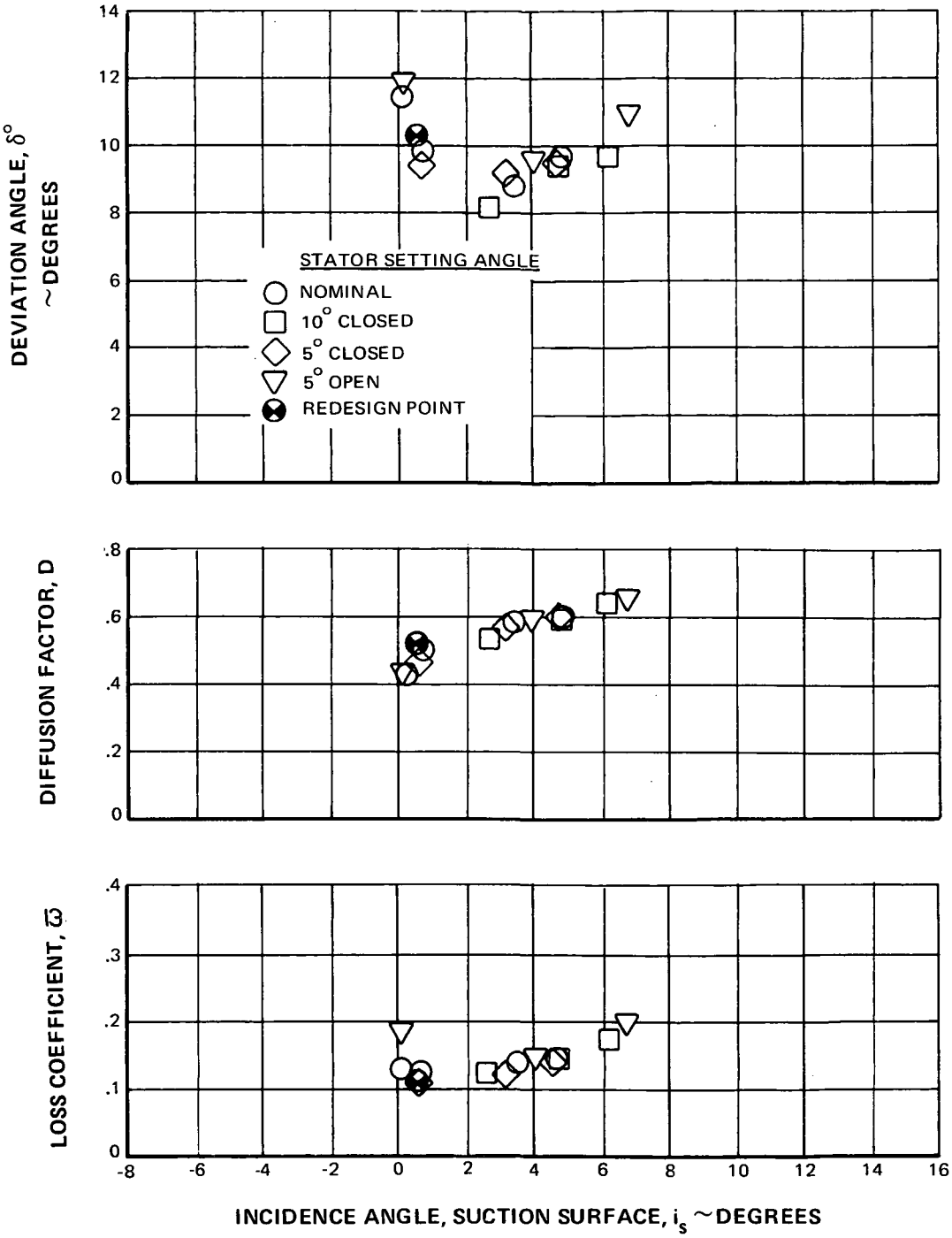


Figure 36c Slotted Rotor Blade Element Performance Optimization Test – 90 Percent Span From Hub

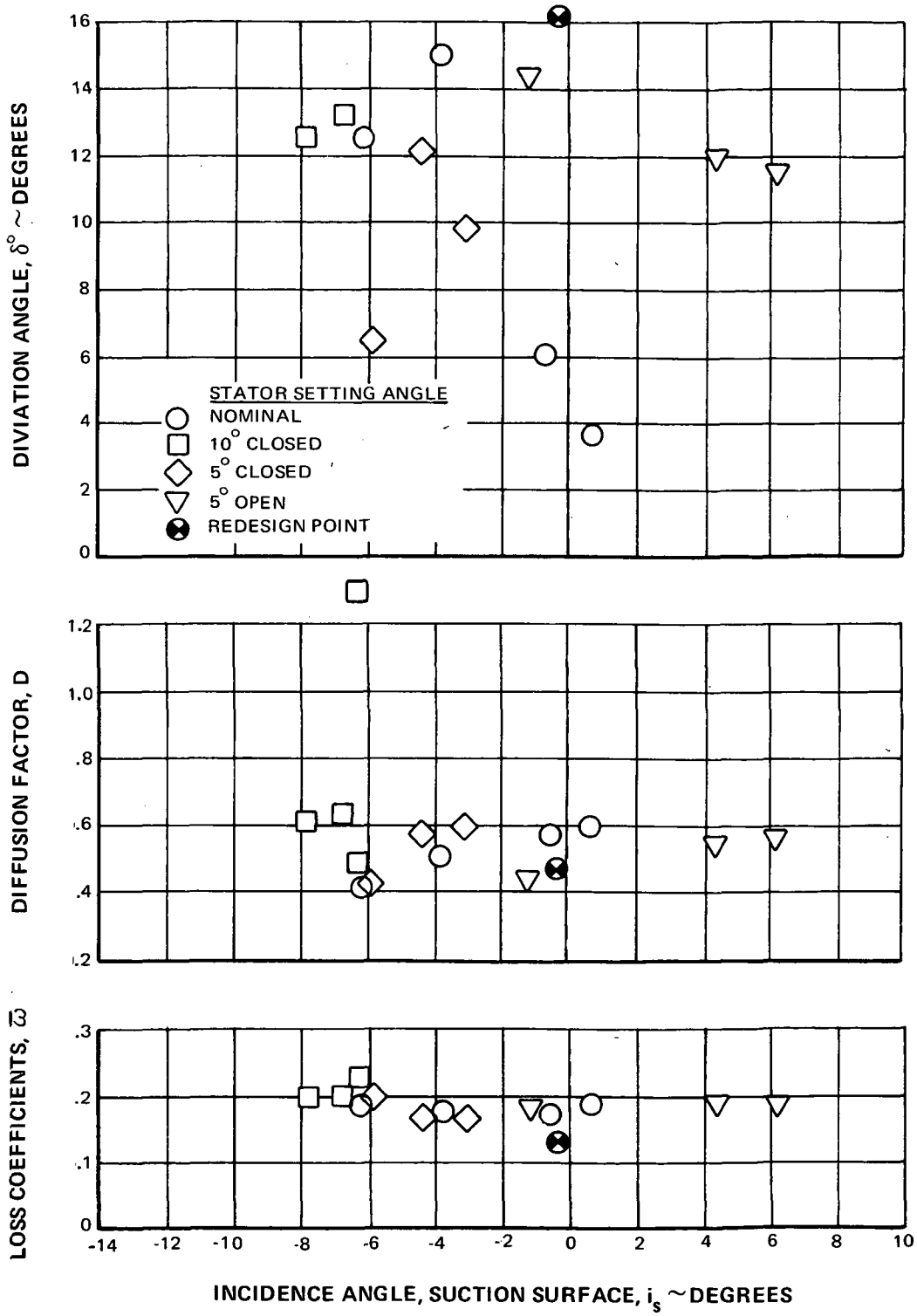


Figure 37a Stator Blade Element Performance, Optimization Test —10 Percent Span From Hub

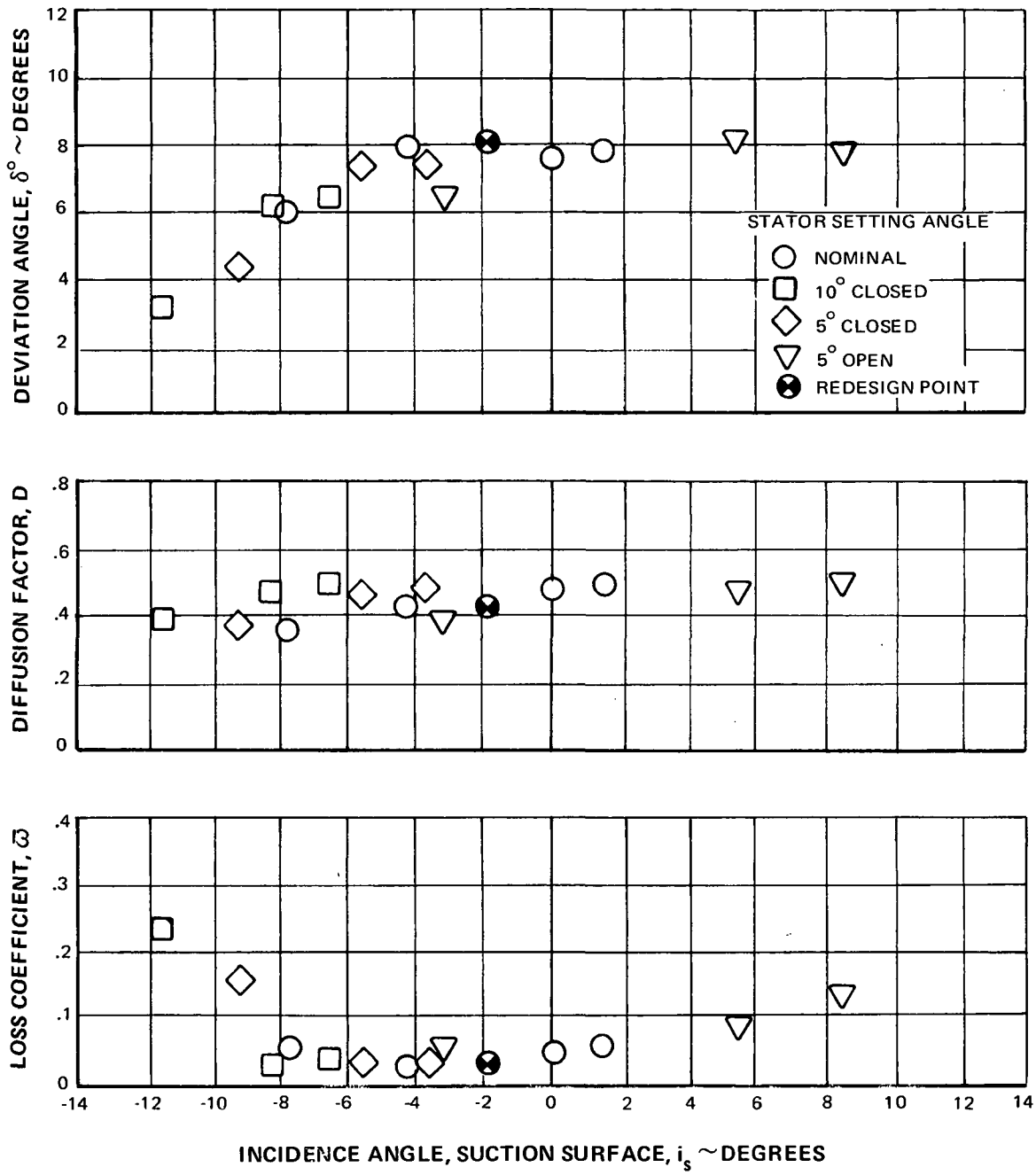


Figure 37b Stator Blade Element Performance, Optimization Test – 50 Percent Span From Hub

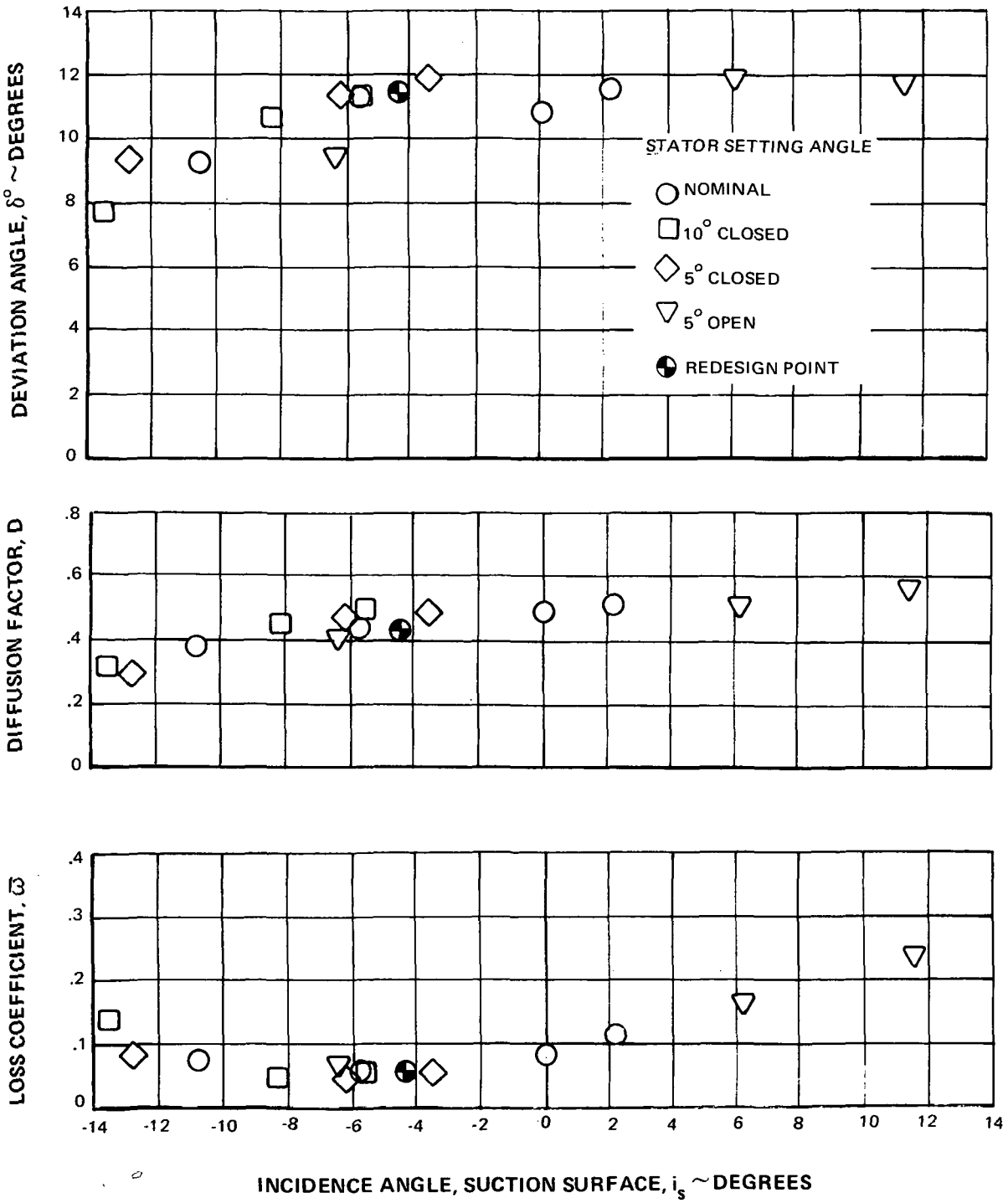


Figure 37c Stator Blade Element Performance, Optimization Test – 90 Percent Span From Hub

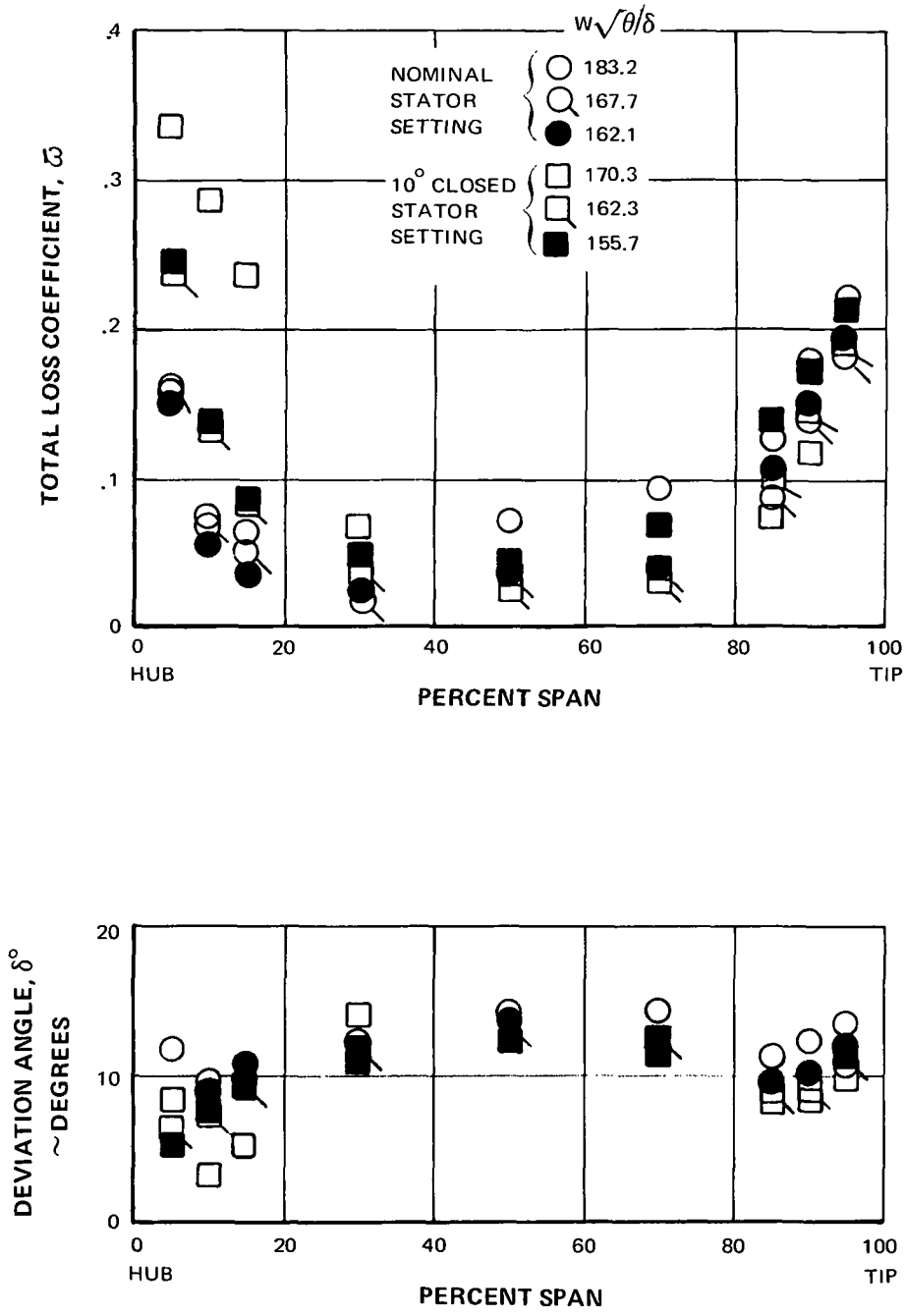


Figure 38 Rotor Loss and Deviation Angle Versus Span for Nominal and Ten-Degree Closed Stator Setting Angles at Design Speed

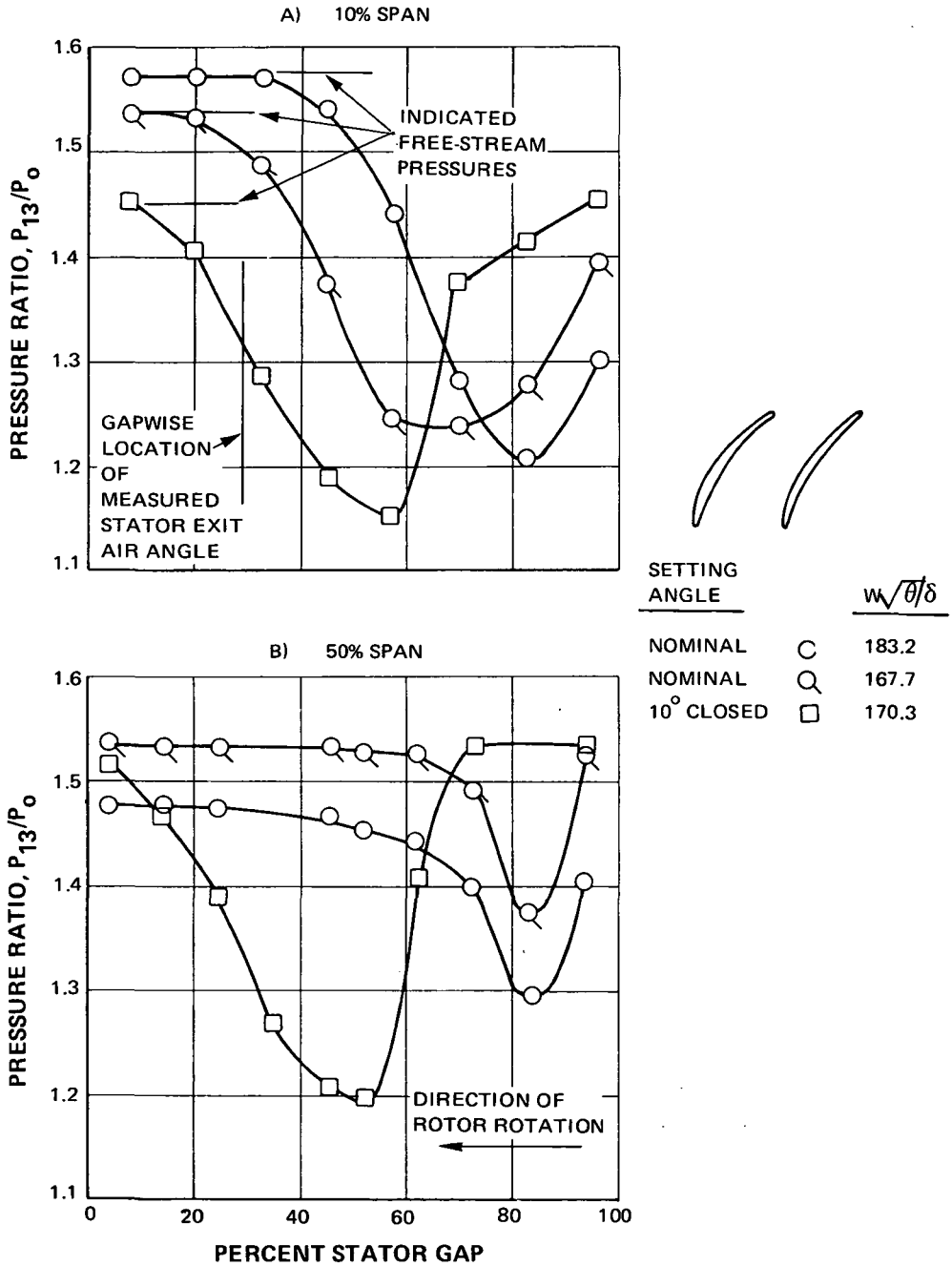


Figure 39 Pressure Wakes at Stator Exit for Nominal and Ten-Degree Closed Stator Settings at Design Speed

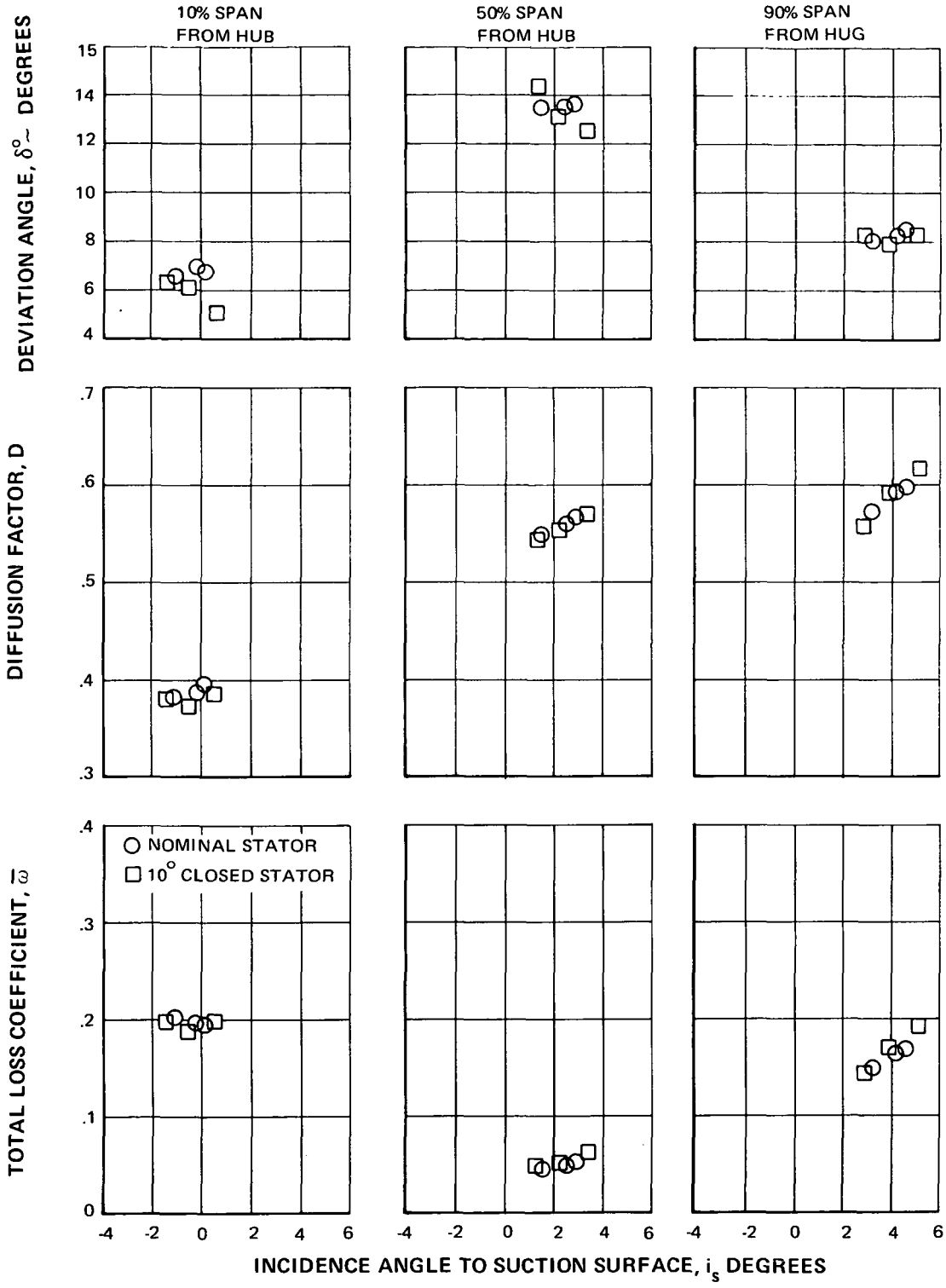


Figure 40 Rotor Blade Element Performance Using Measured Stator Inlet Traverse Pressures in Lieu of Stator Exit, Free-Stream Values at Design Speed

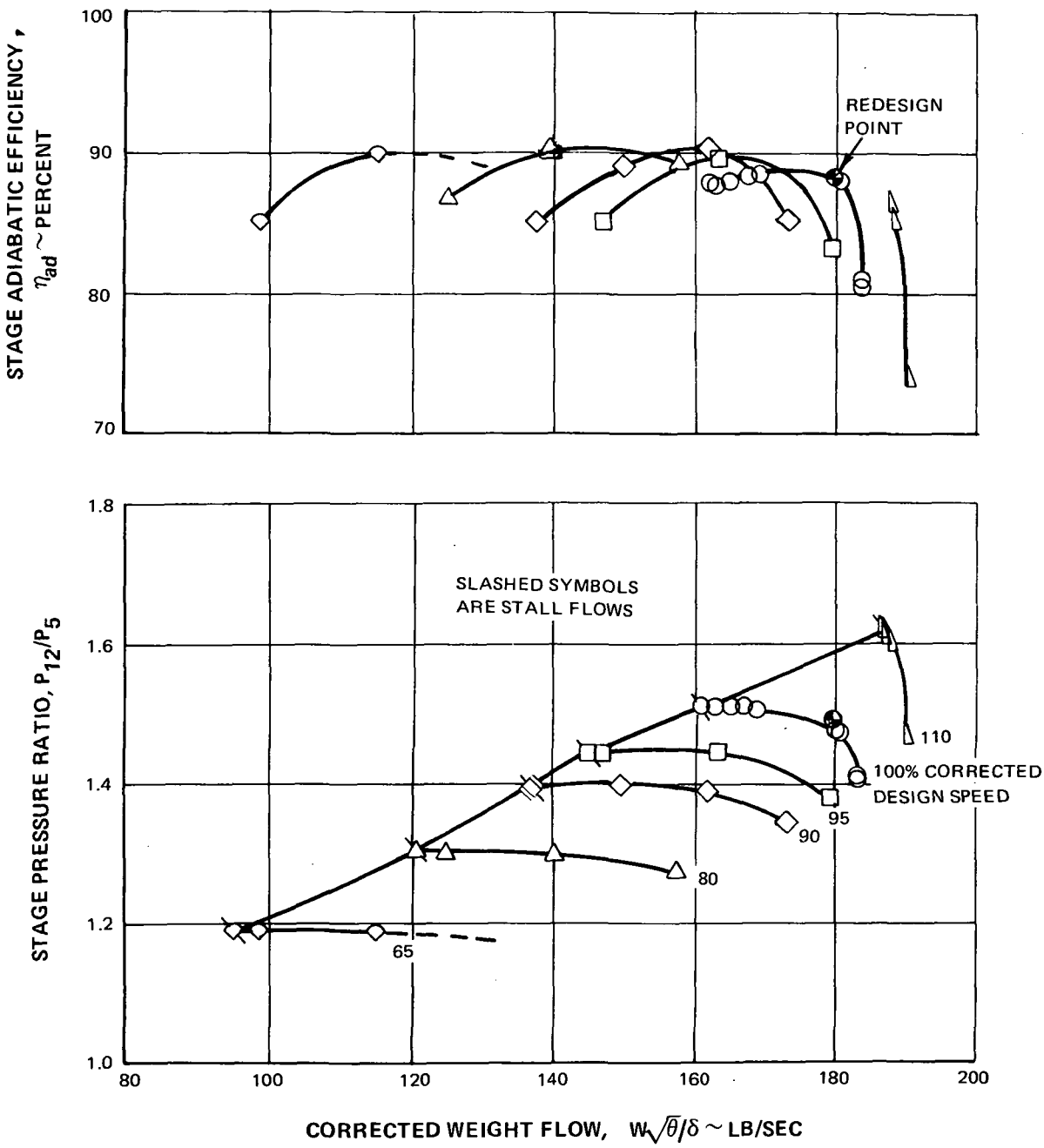


Figure 41 Overall Fan Stage Performance With Uniform Inlet Flow, Nominal Stator Setting

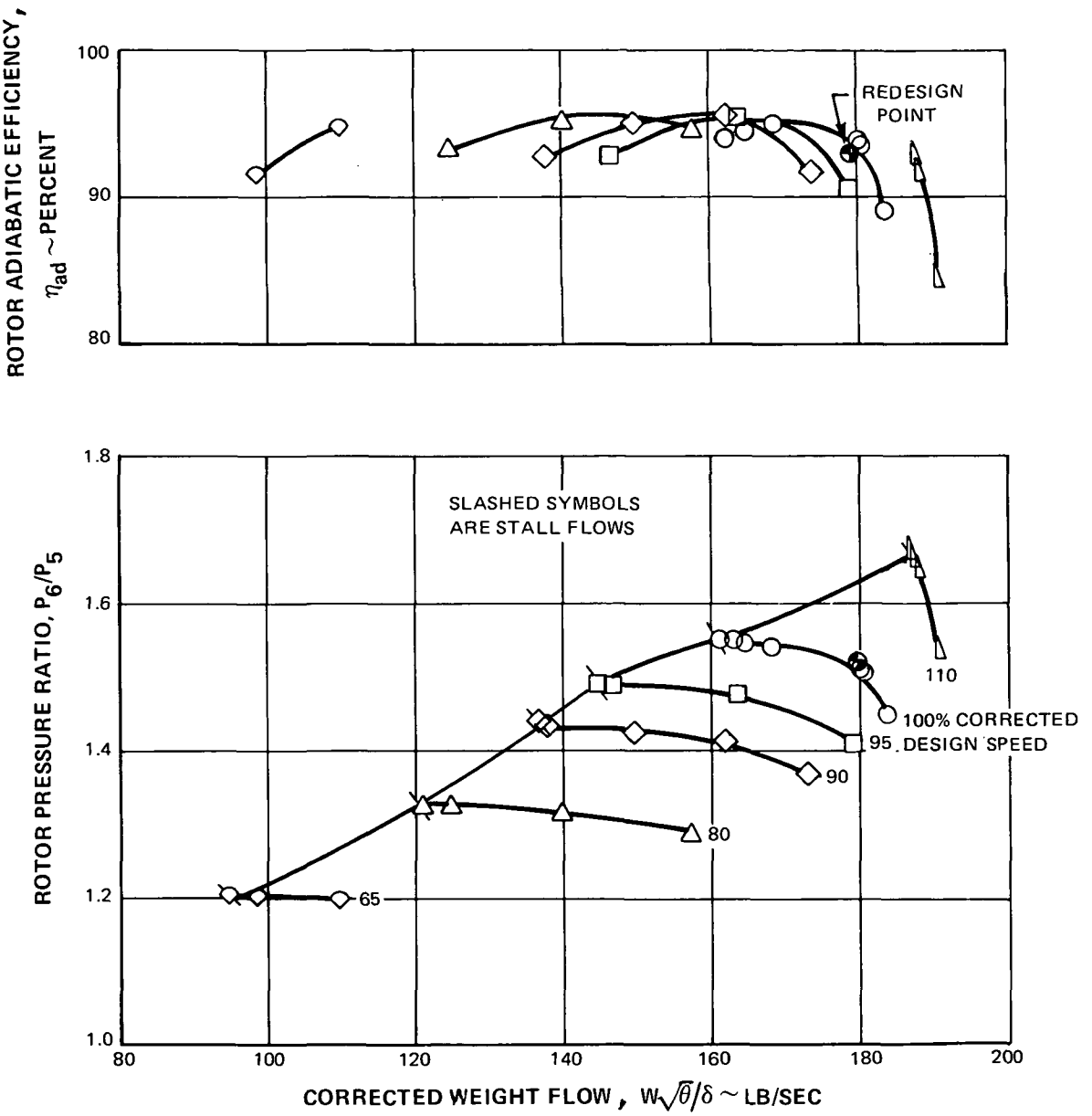


Figure 42 Overall Performance of Rotor With Uniform Inlet Flow, Nominal Stator Setting

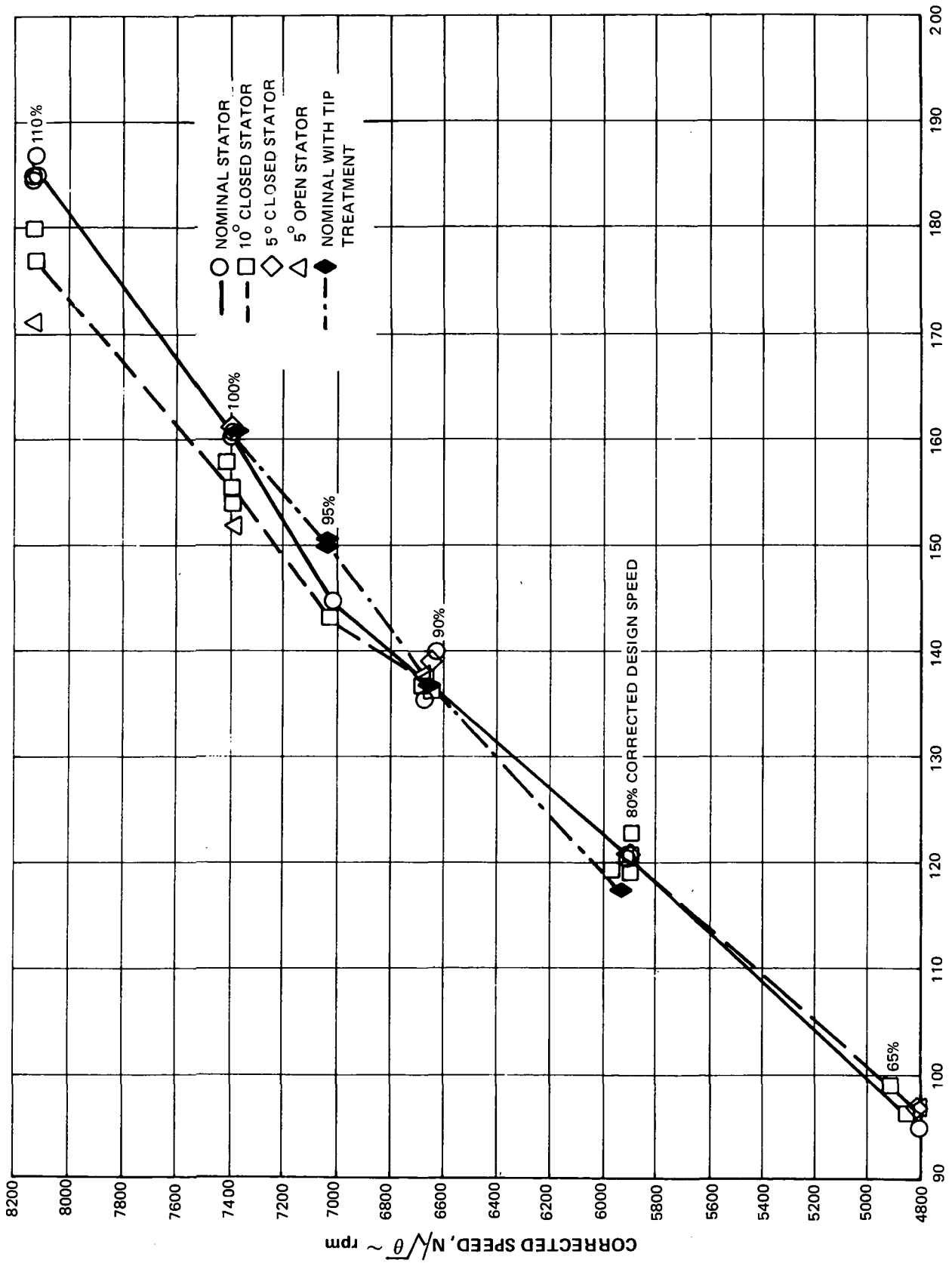


Figure 43 Stall Flow as a Function of Speed for Uniform Inlet Flow

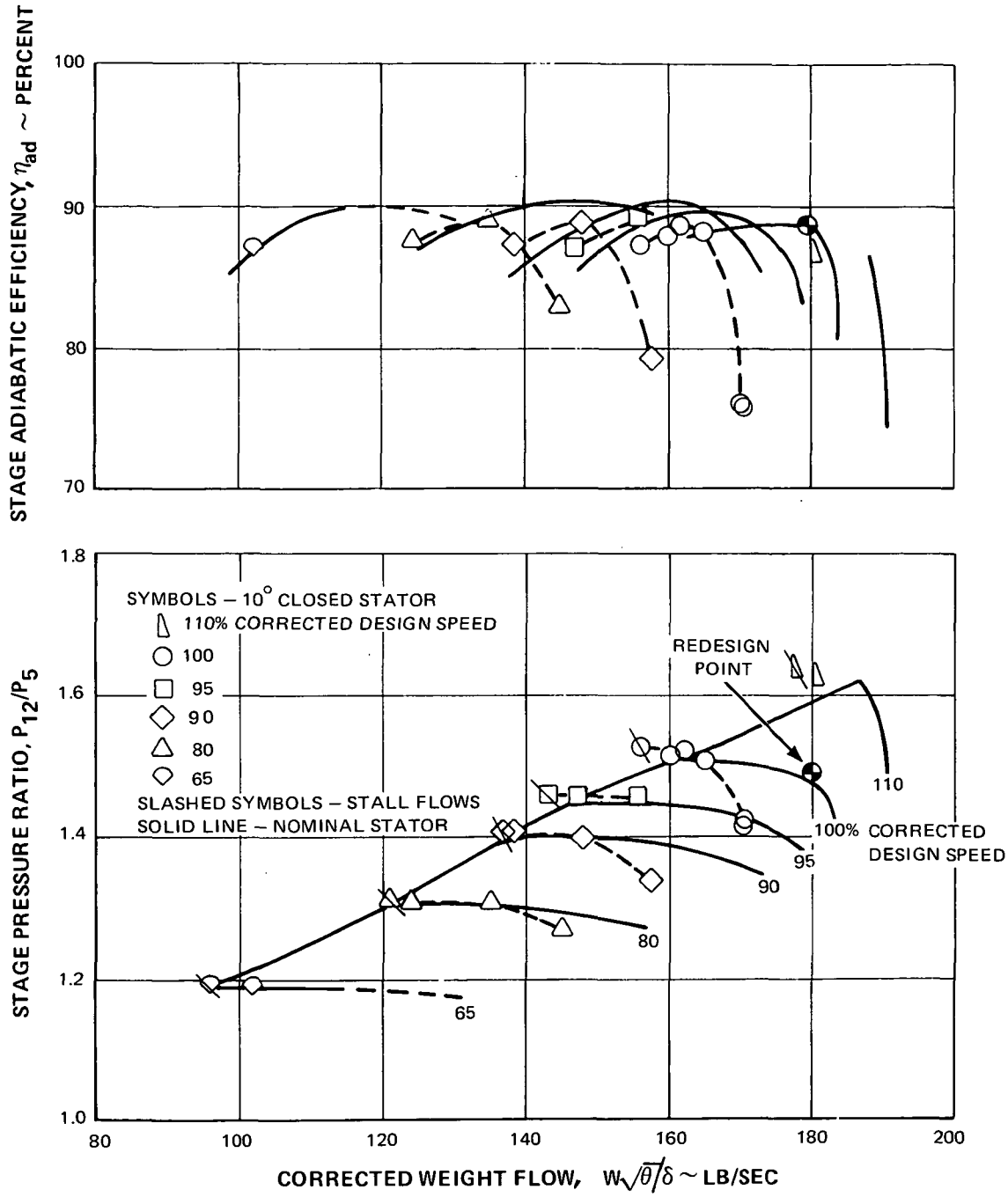


Figure 44 Overall Fan Stage Performance With Uniform Inlet Flow, Showing Effect of Closing Stator Ten Degrees

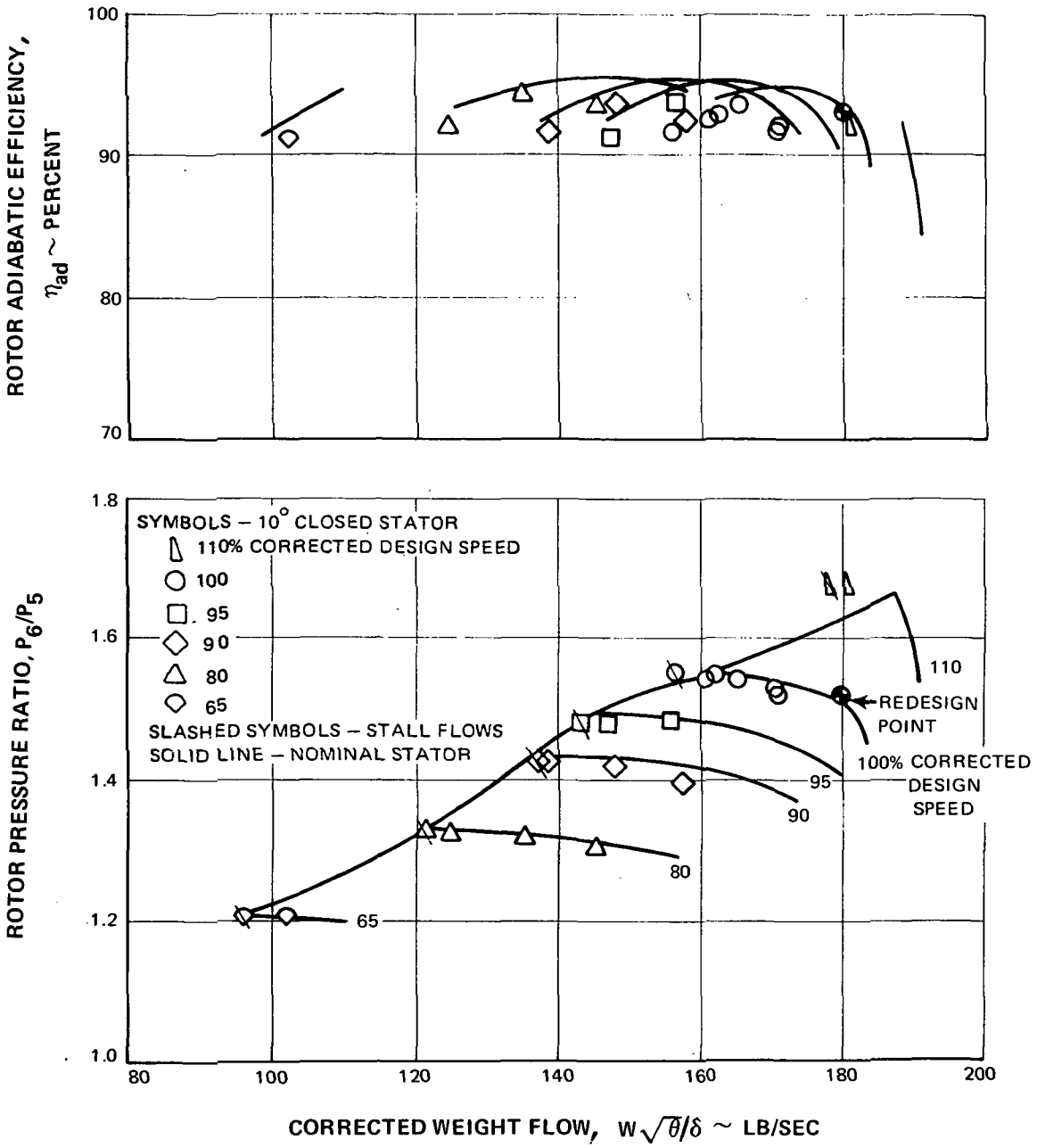


Figure 45 Overall Performance of Rotor With Uniform Inlet Flow, Showing Effect of Closing Stator Ten Degrees

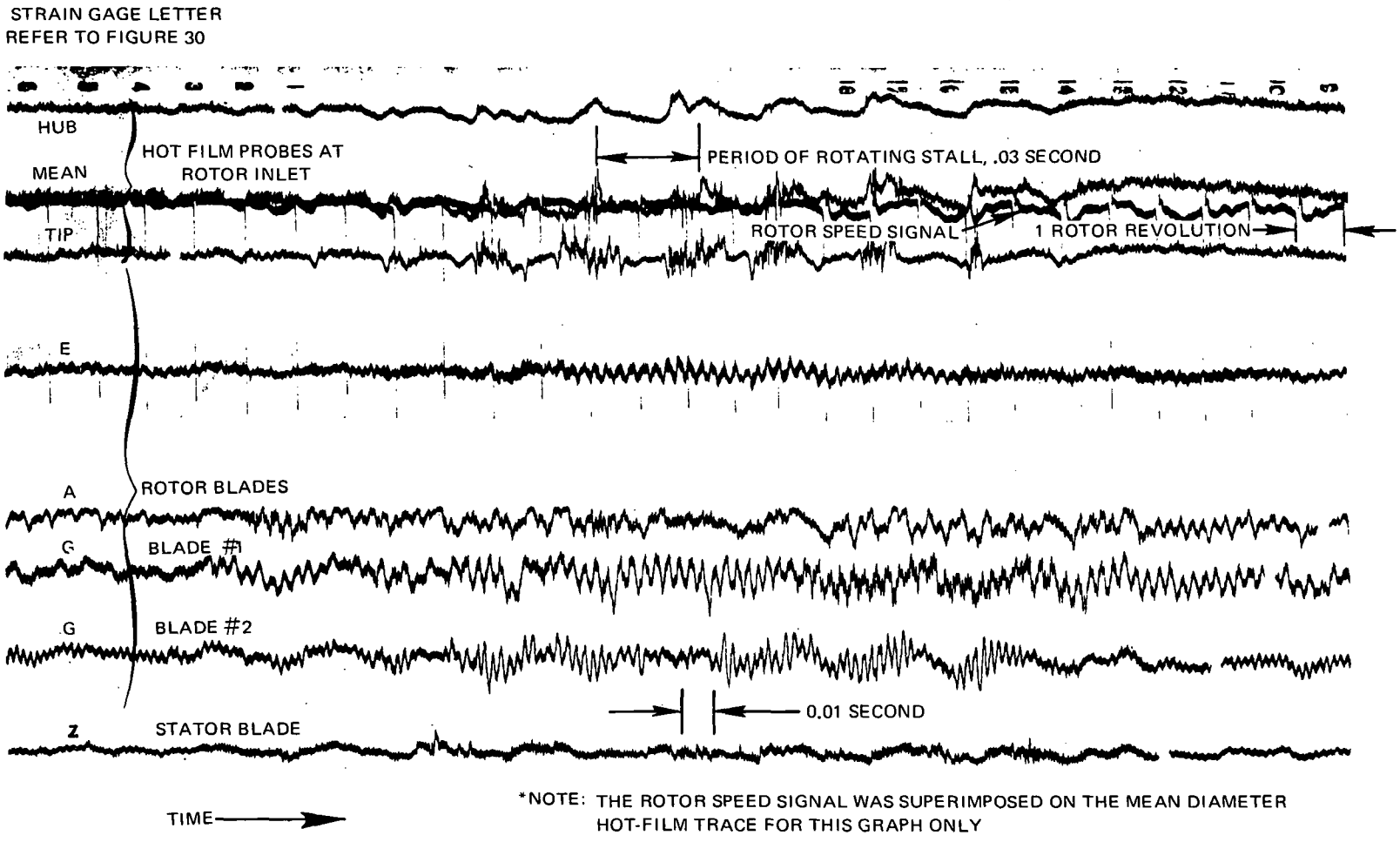


Figure 46 Oscillograph Trace of Stall With Uniform Inlet Flow and Nominal Stator at 80 Percent Design Speed

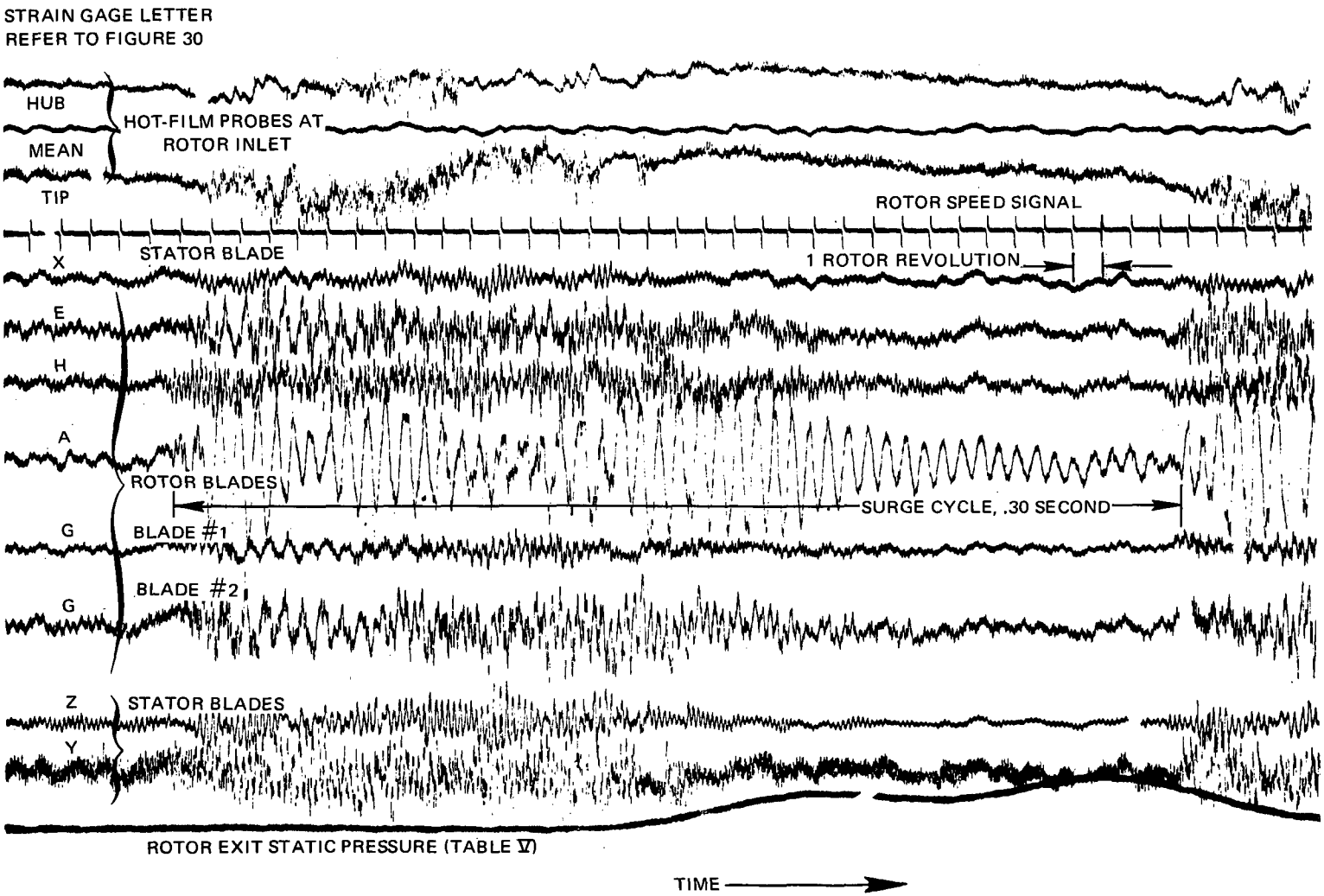


Figure 47 Oscillograph Trace of Stall With Uniform Inlet Flow and Nominal Stator at 100 Percent of Design Speed

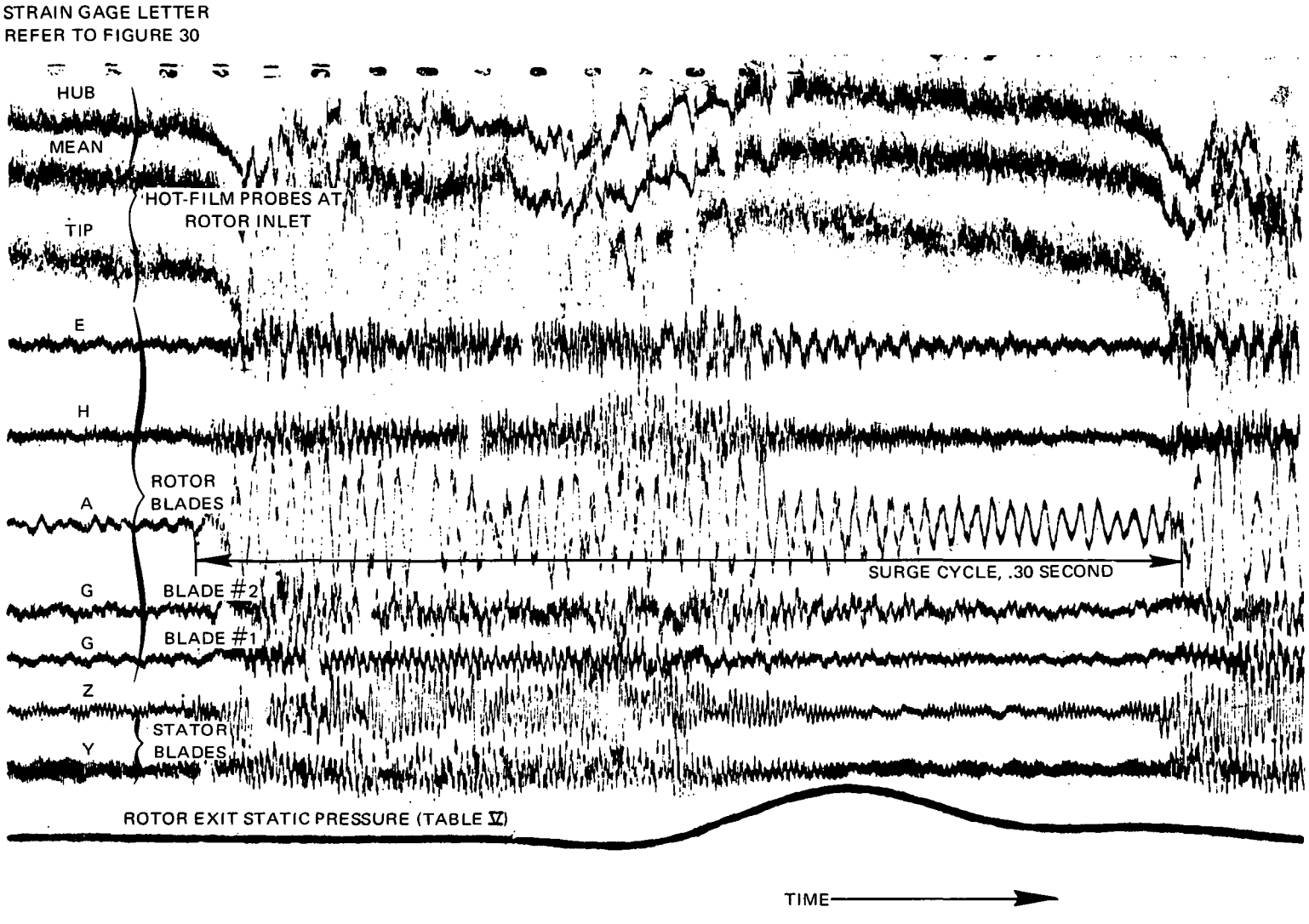


Figure 48 Oscillograph Trace of Stall with Uniform Inlet Flow and Stator Ten Degrees Closed at 100 Percent Design Speed

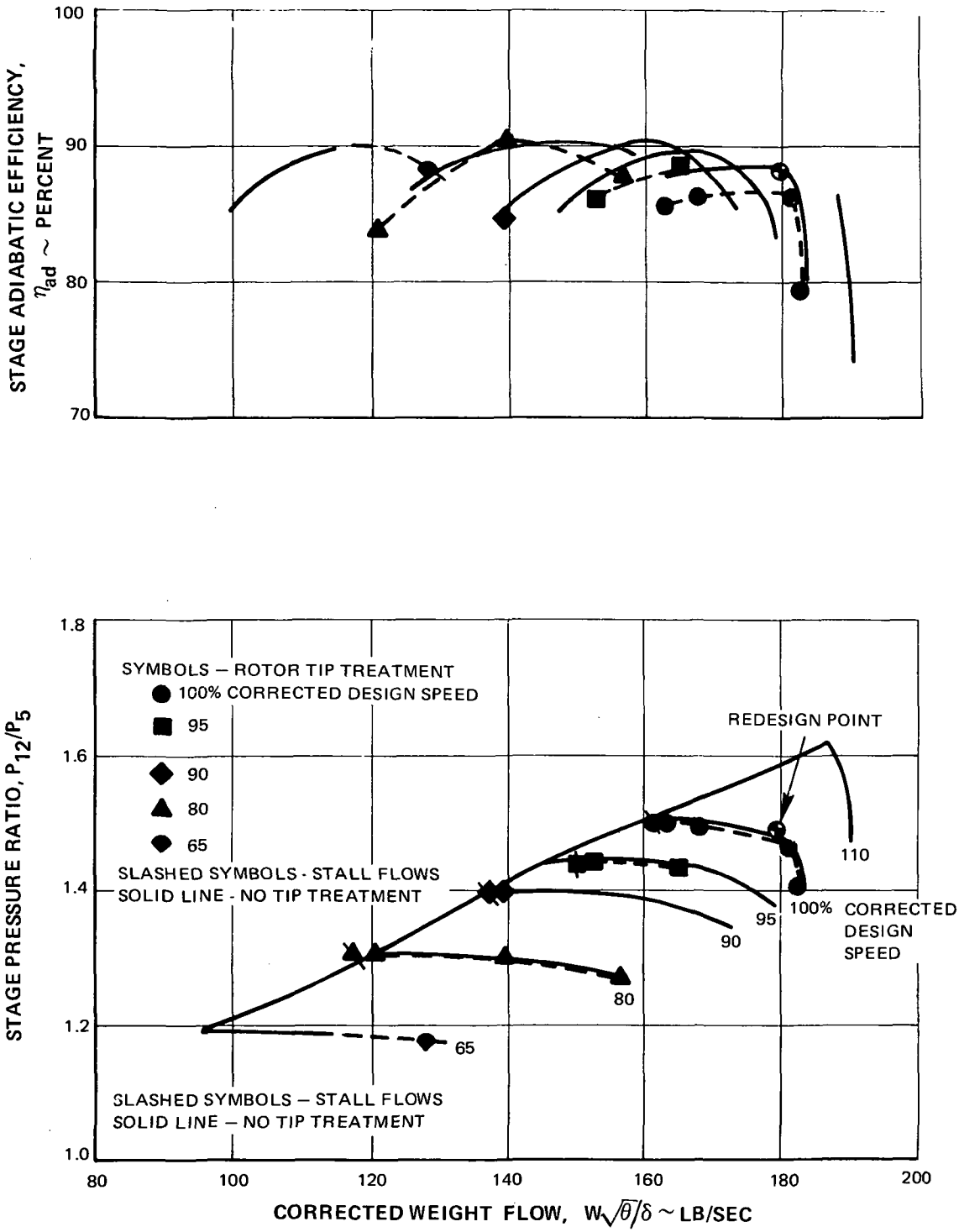


Figure 49 Overall Fan Stage Performance With Uniform Inlet Flow and Nominal Stator Setting, Showing Effect of Skewed Slots Tip Treatment

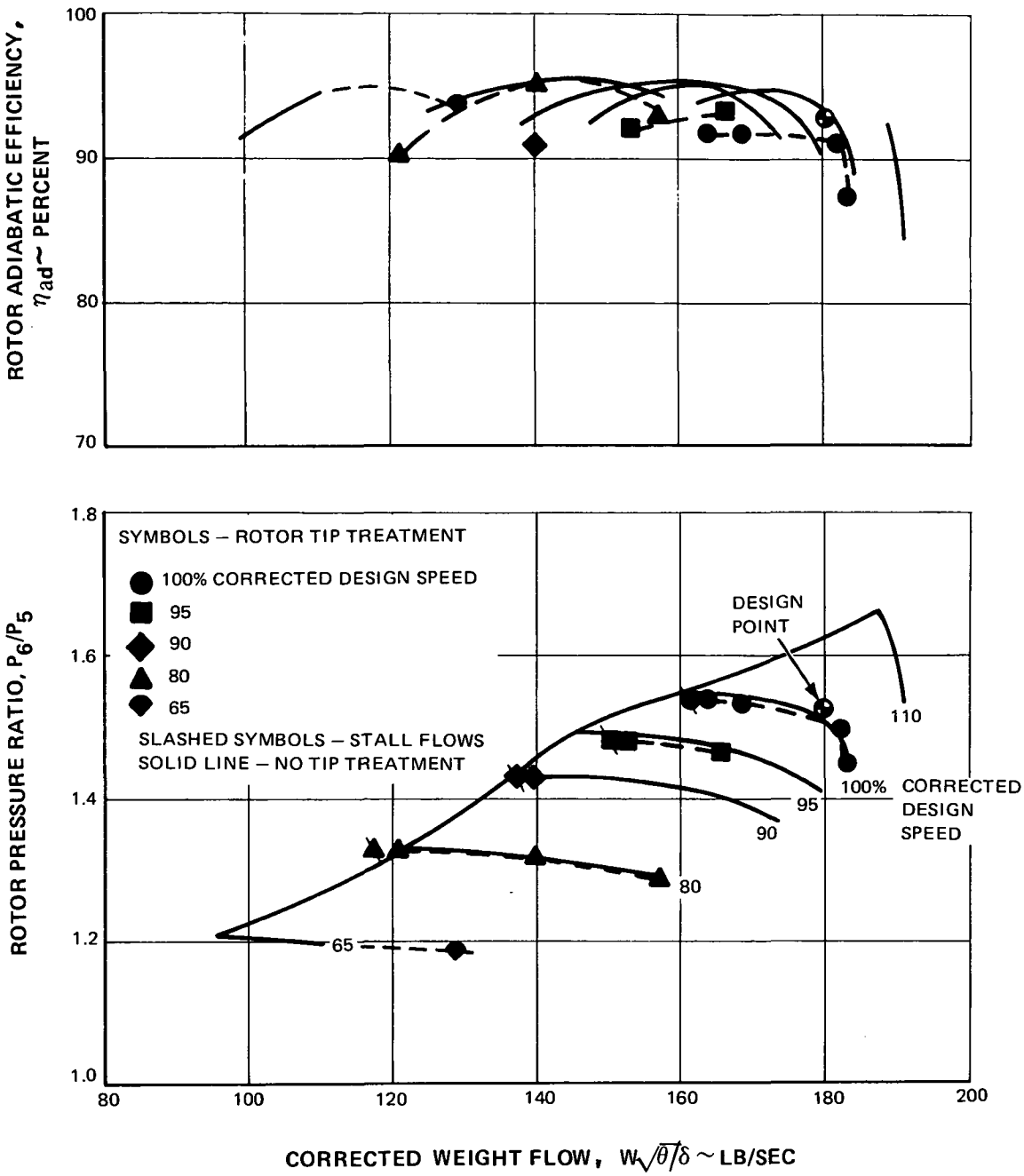


Figure 50 Overall Performance of Rotor With Uniform Inlet Flow and Nominal Stator Setting, Showing Effect of Skewed Slots Tip Treatment

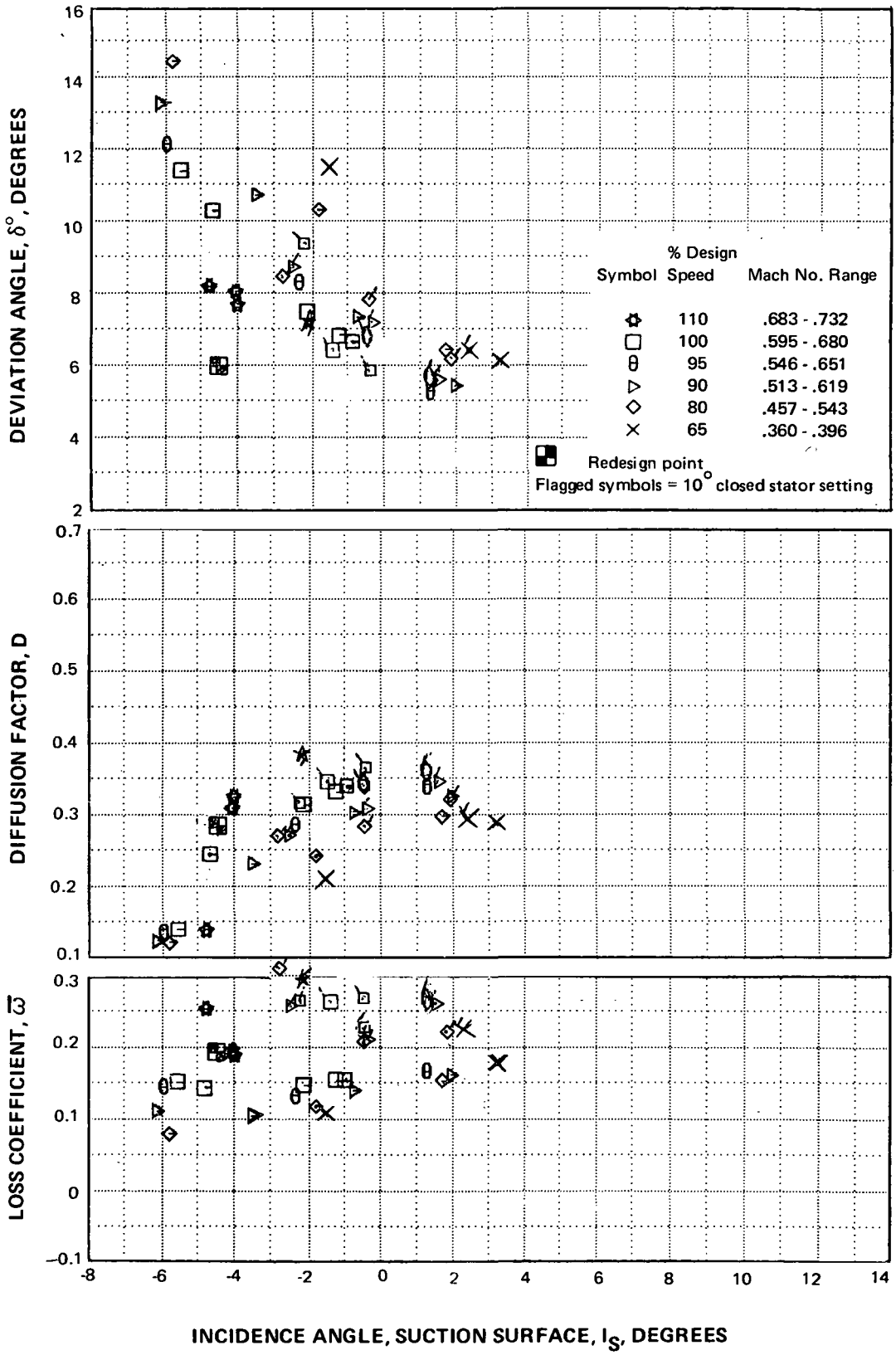


Figure 51a Slotted Rotor Blade Element Performance With Uniform Inlet Flow From Test With the Nominal and 10 Degree Closed Stator Settings at 5 Percent Span From Hub

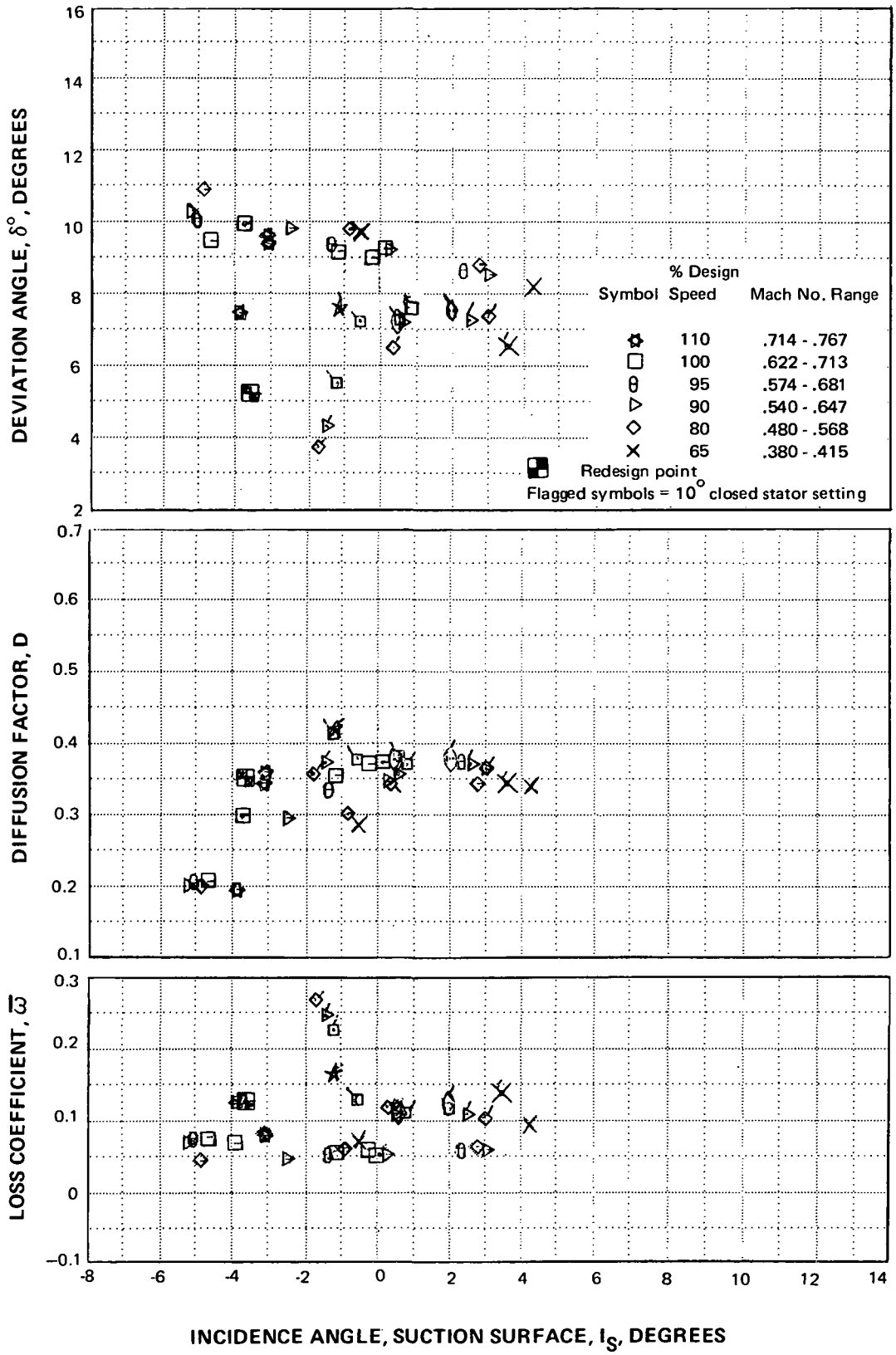


Figure 51b Slotted Rotor Blade Element Performance With Uniform Inlet Flow From Test With the Nominal and 10 Degree Closed Stator Settings at 10 Percent Span From Hub

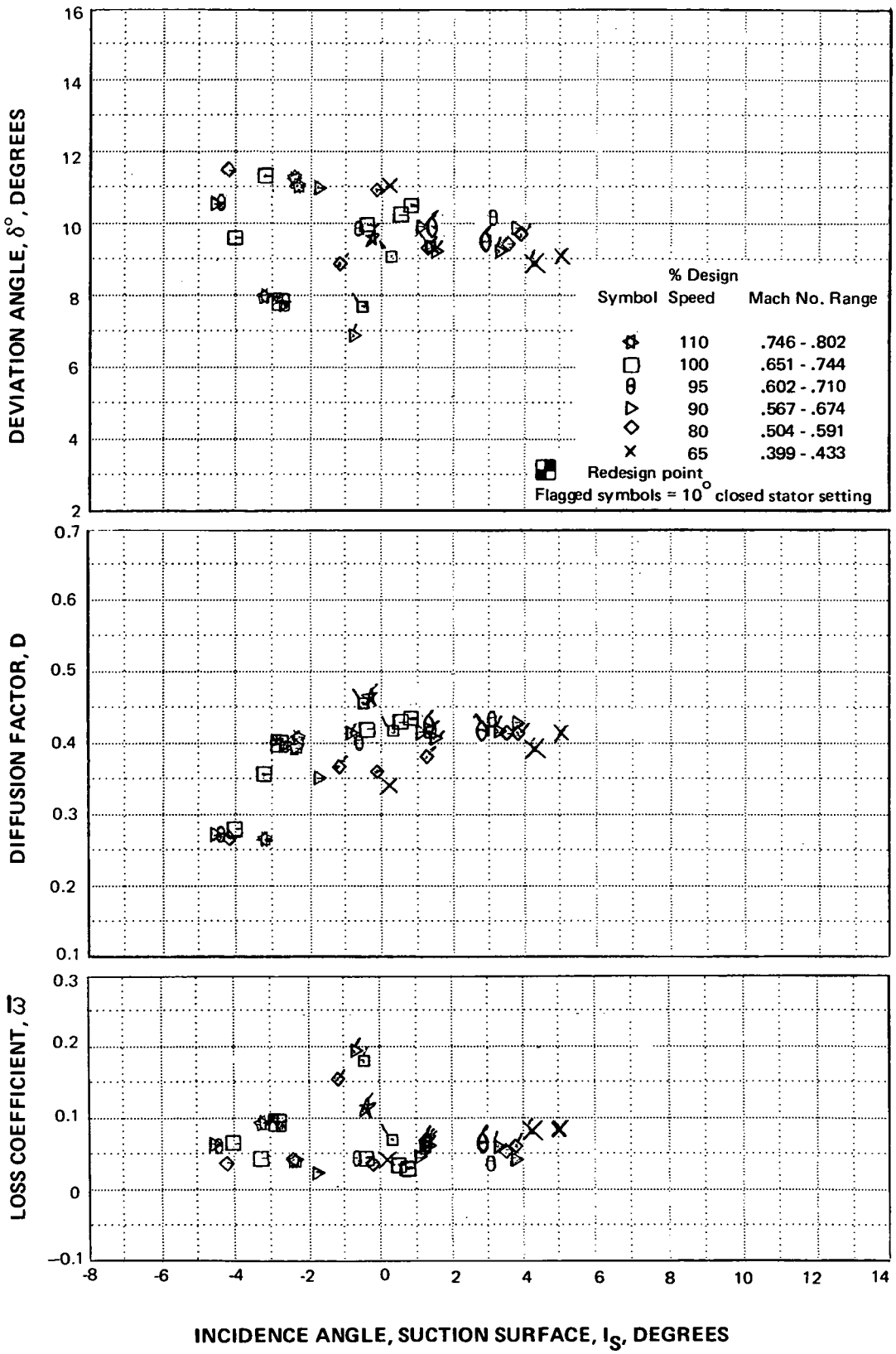


Figure 51c Slotted Rotor Blade Element Performance With Uniform Inlet Flow From Test With the Nominal and 10 Degree Closed Stator Settings at 15 Percent Span From Hub

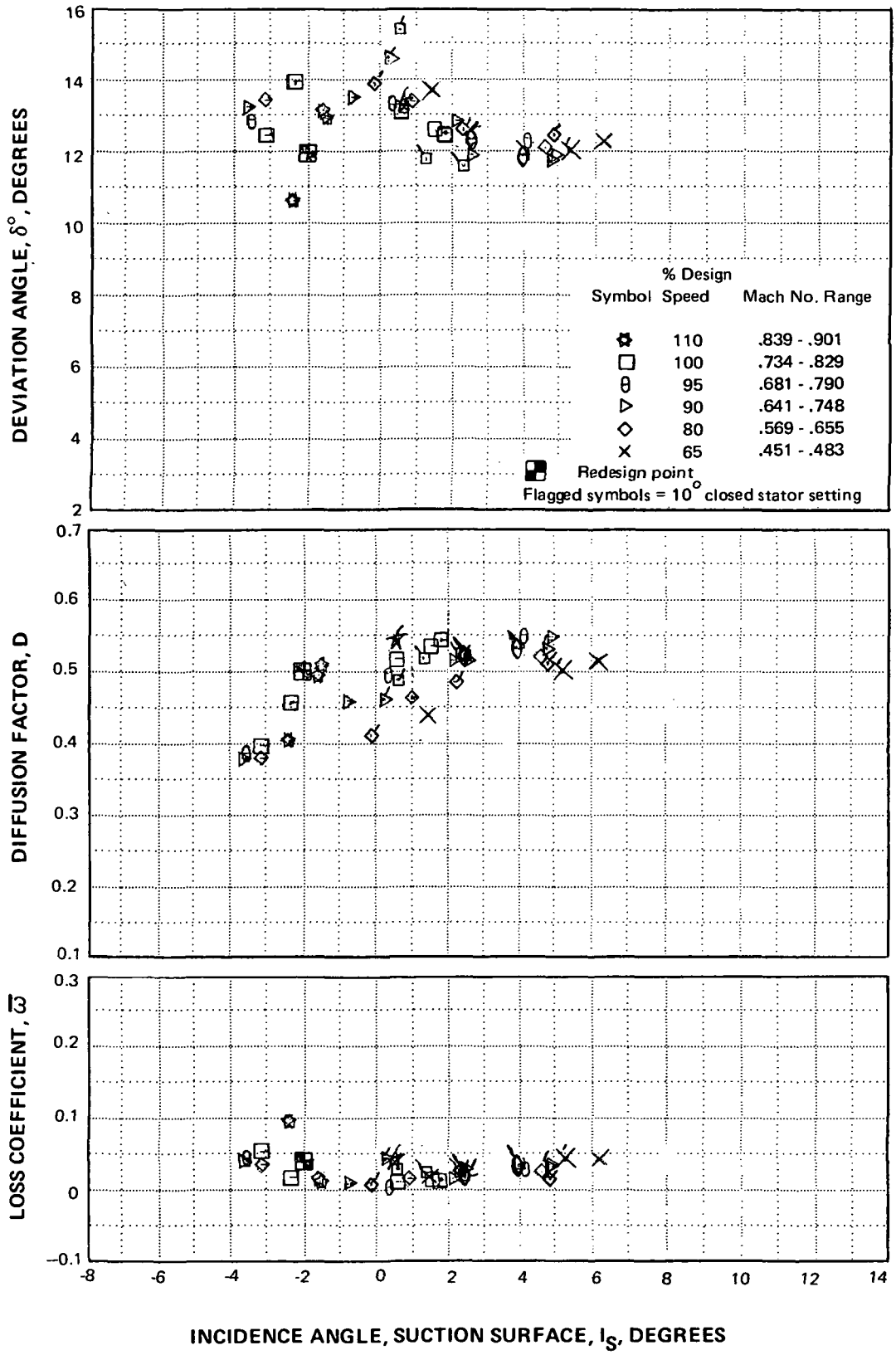


Figure 51d Slotted Rotor Blade Element Performance With Uniform Inlet Flow From Test With the Nominal and 10 Degree Closed Stator Settings at 30 Percent Span From Hub

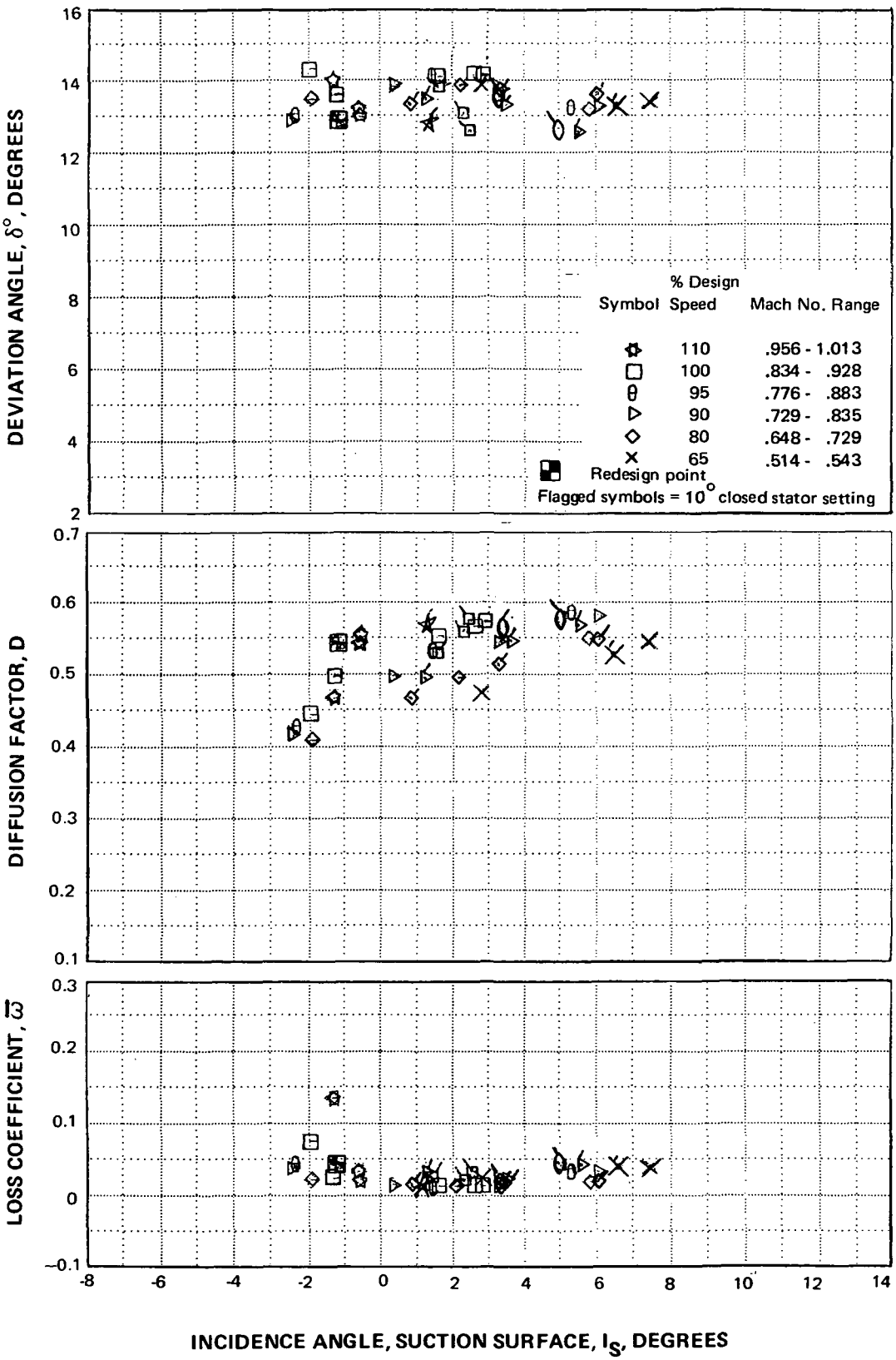


Figure 51e Slotted Rotor Blade Element Performance With Uniform Inlet Flow From Test With the Nominal and 10 Degree Closed Stator Settings at 50 Percent Span From Hub

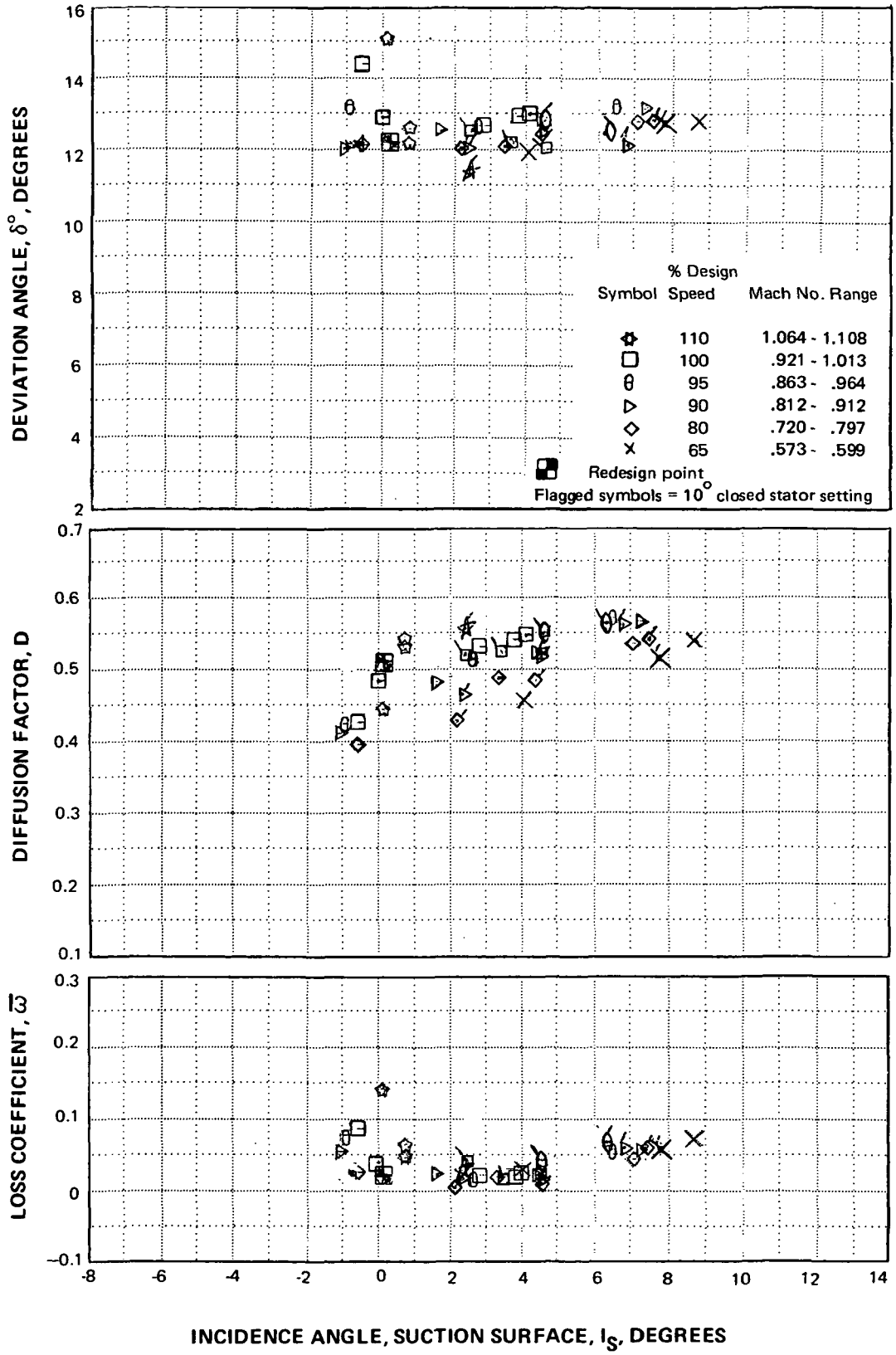


Figure 51f Slotted Rotor Blade Element Performance With Uniform Inlet Flow From Test With the Nominal and 10 Degree Closed Stator Settings at 70 Percent Span From Hub

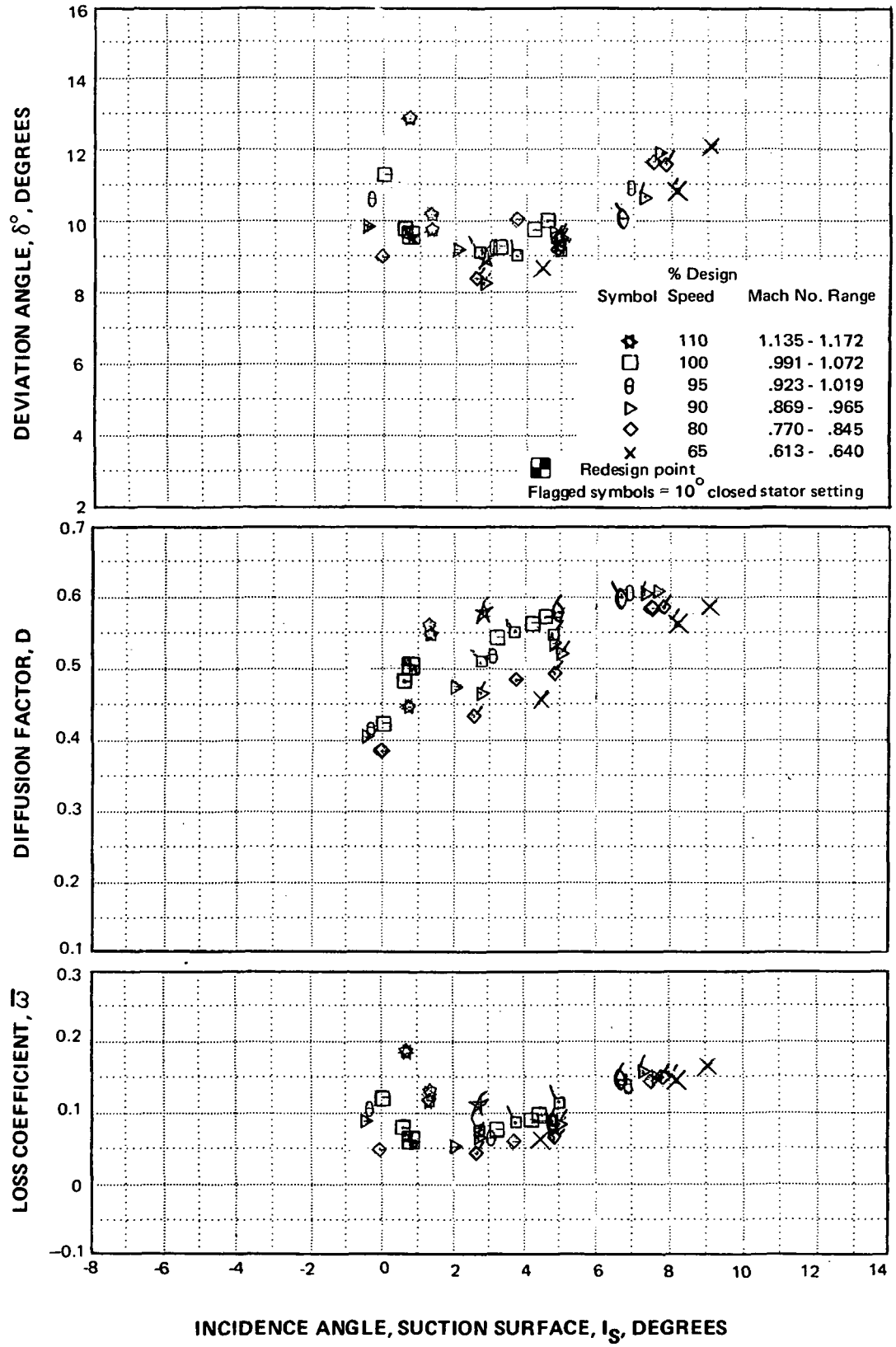


Figure 51g Slotted Rotor Blade Element Performance With Uniform Inlet Flow From Test With the Nominal and 10 Degree Closed Stator Settings at 85 Percent Span From Hub

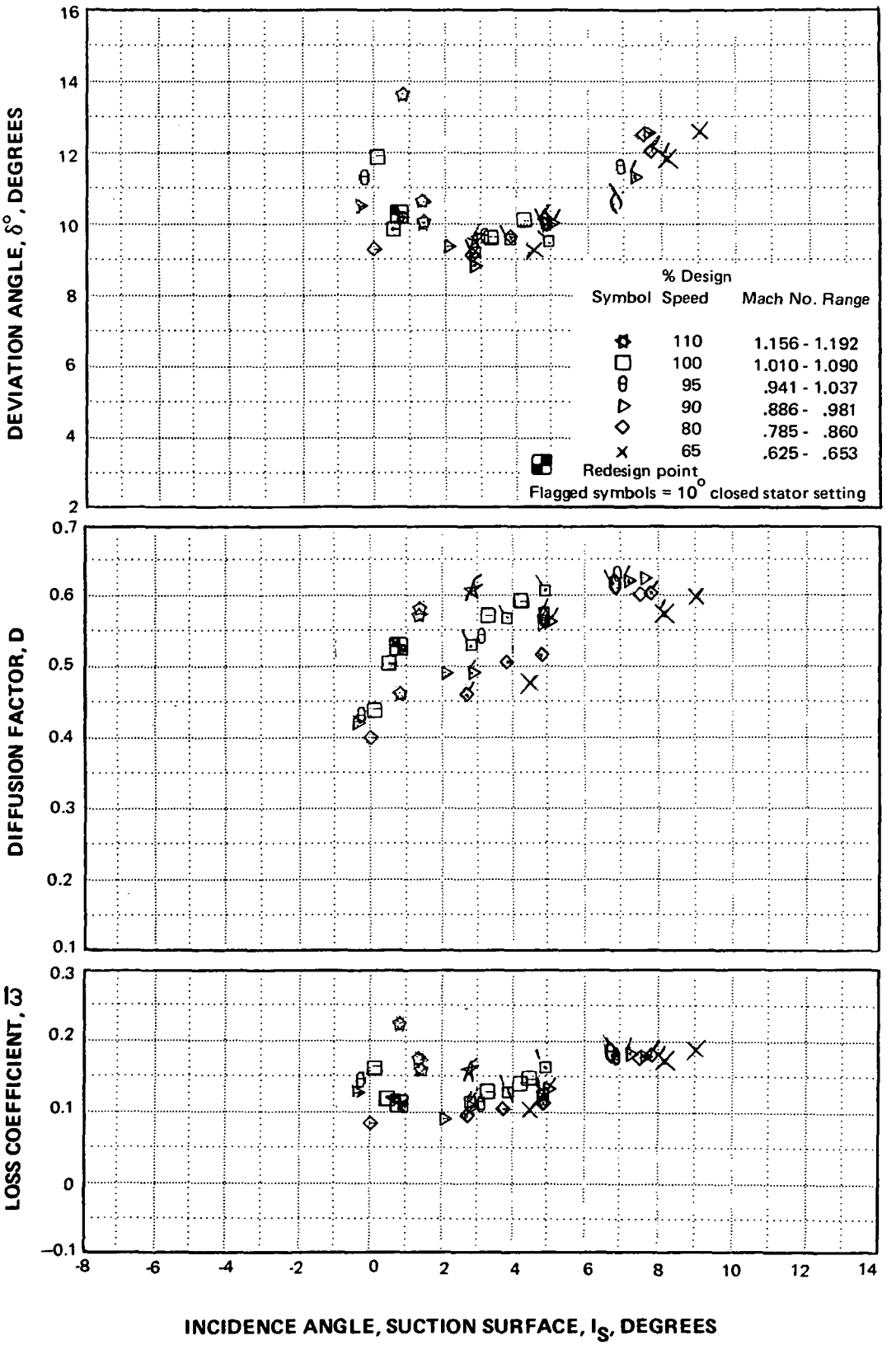


Figure 51h Slotted Rotor Blade Element Performance With Uniform Inlet Flow From Test With the Nominal and 10 Degree Closed Stator Settings at 90 Percent Span From Hub

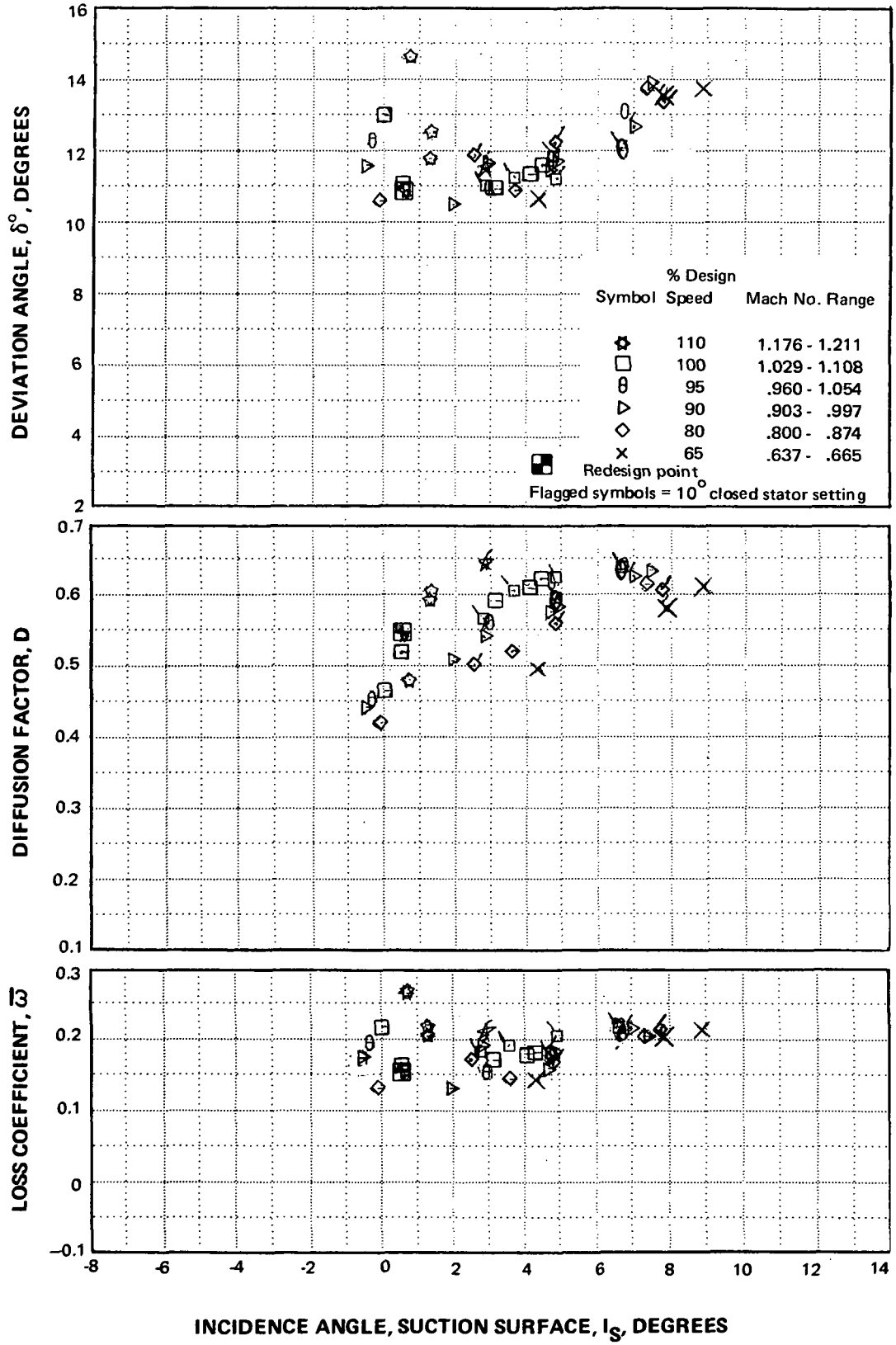


Figure 51i Slotted Rotor Blade Element Performance With Uniform Inlet Flow From Test With the Nominal and 10 Degree Closed Stator Settings at 95 Percent Span From Hub

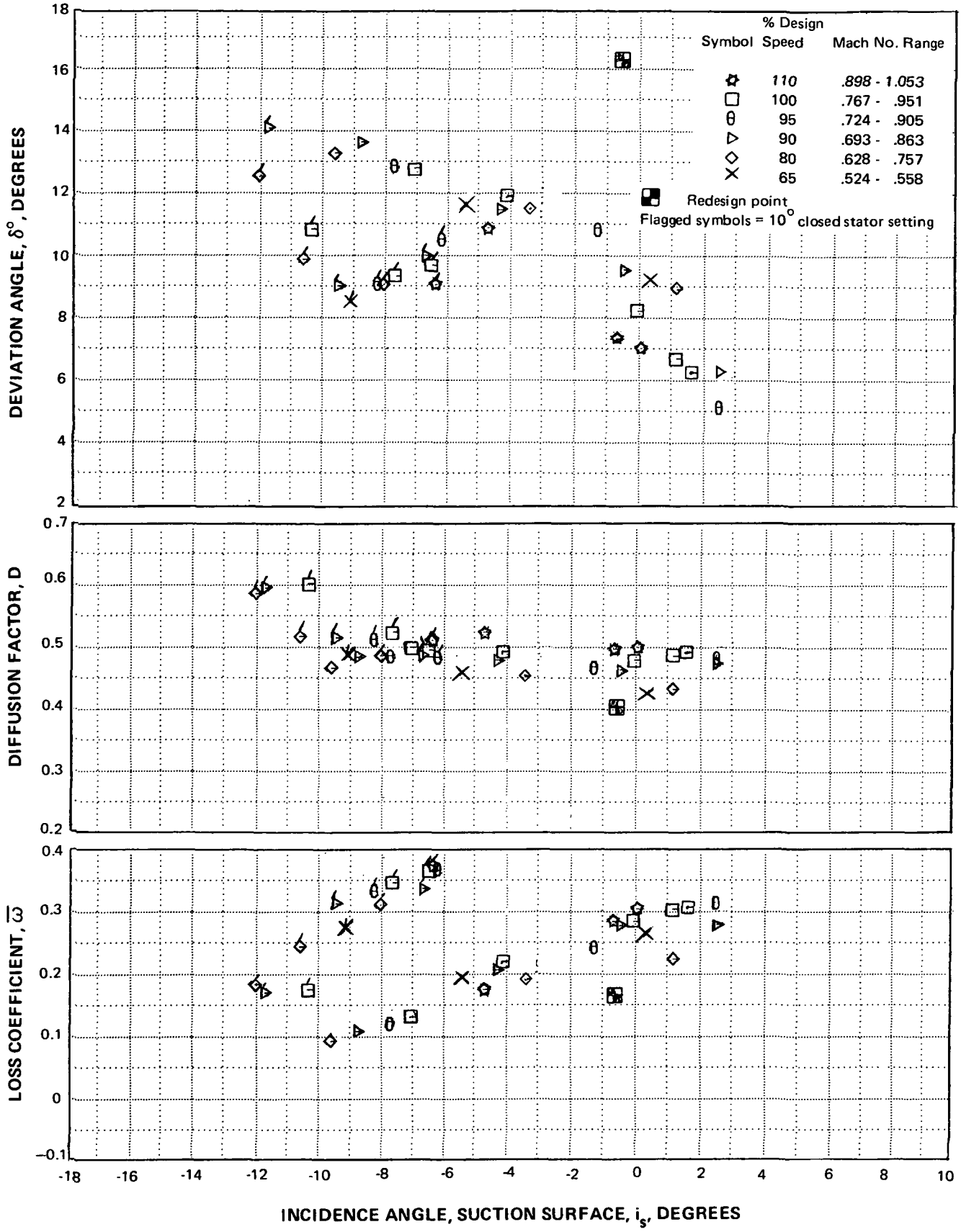


Figure 52a Stator Blade Element Performance With Uniform Inlet Flow Showing Effect of 10 Degree Closed Stator Setting at 5 Percent Span From Hub

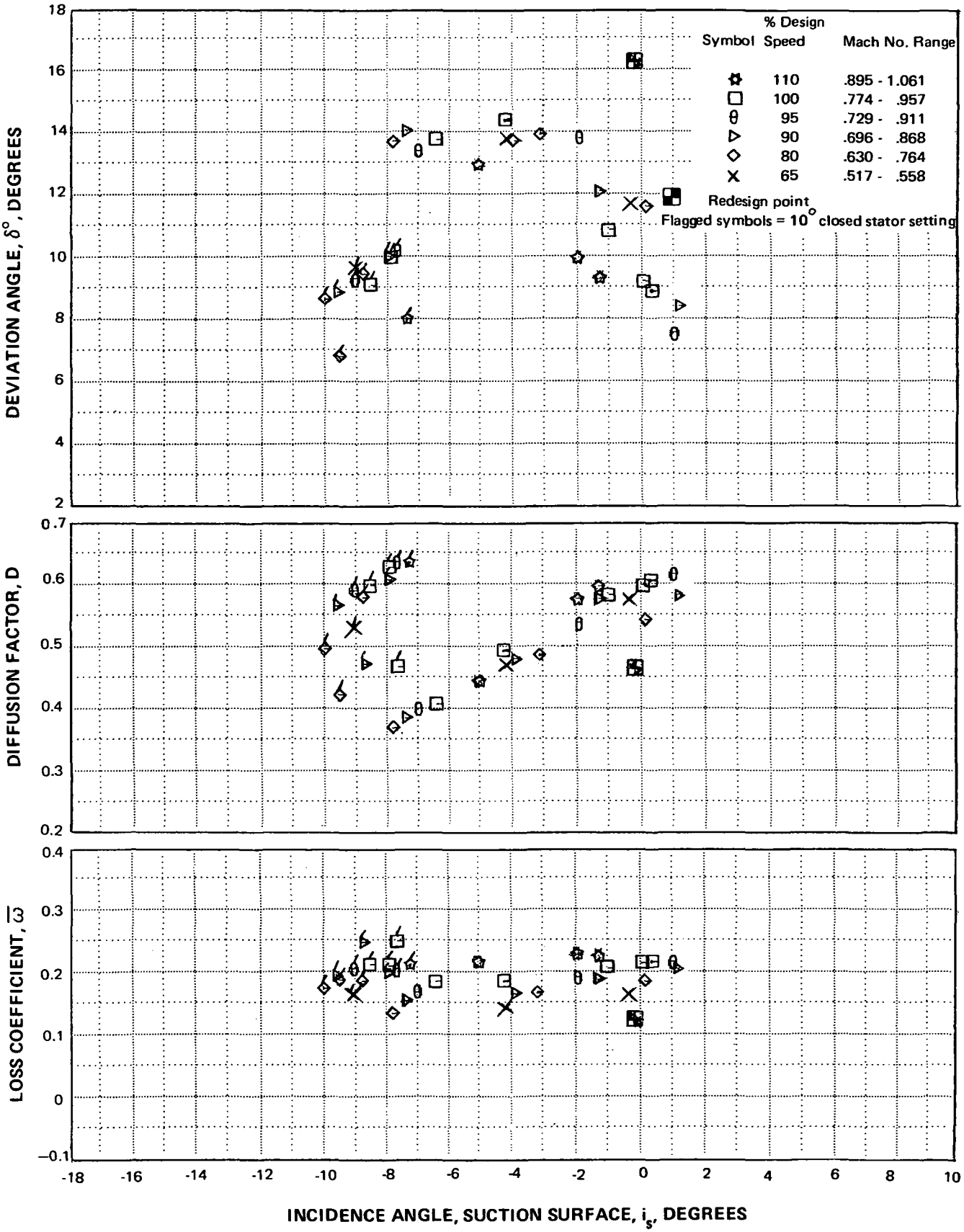


Figure 52b Stator Blade Element Performance With Uniform Inlet Flow Showing Effect of 10 Degree Closed Stator Setting at 10 Percent Span From Hub

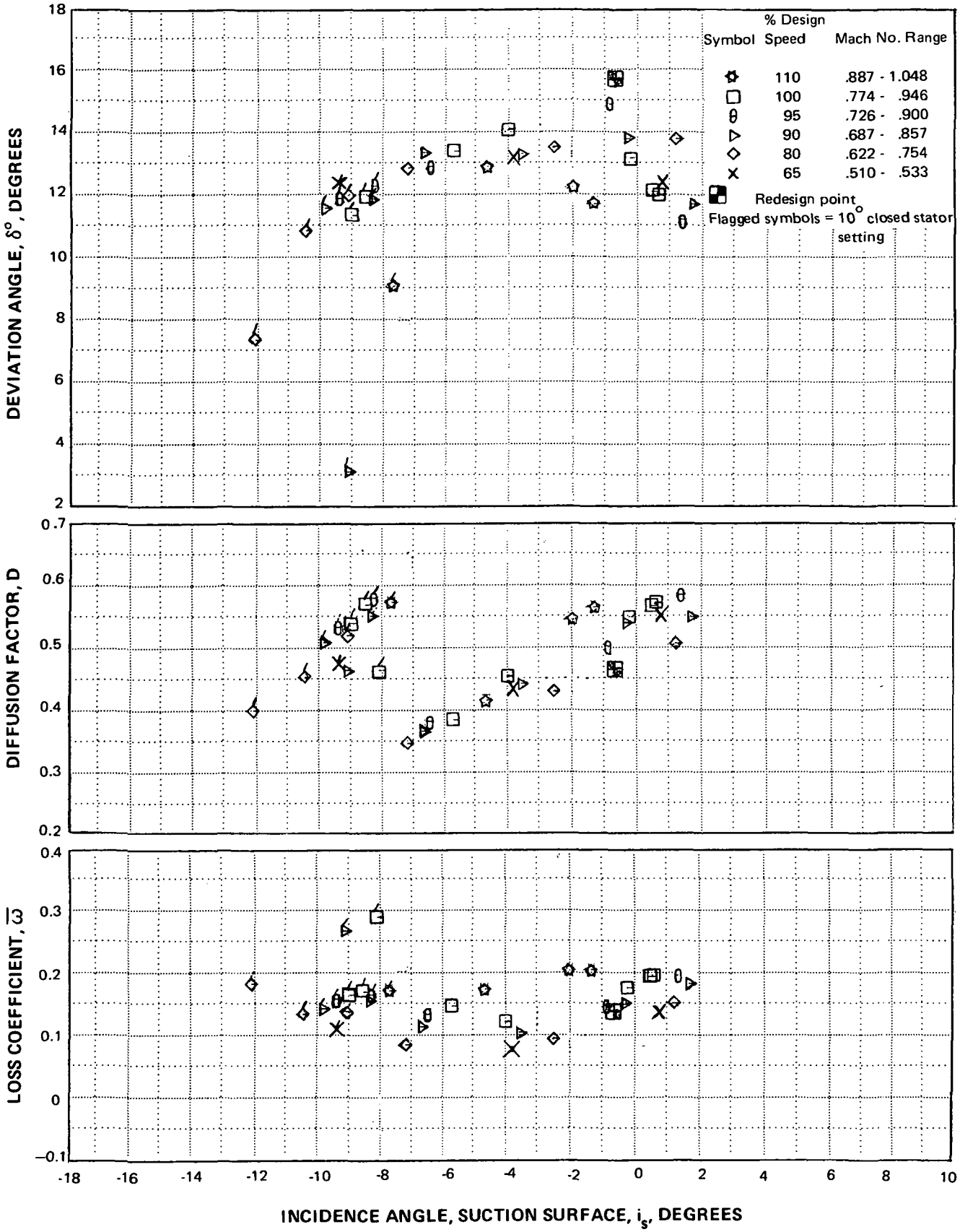


Figure 52c Stator Blade Element Performance With Uniform Inlet Flow Showing Effect of 10 Degree Closed Stator Setting at 15 Percent Span From Hub

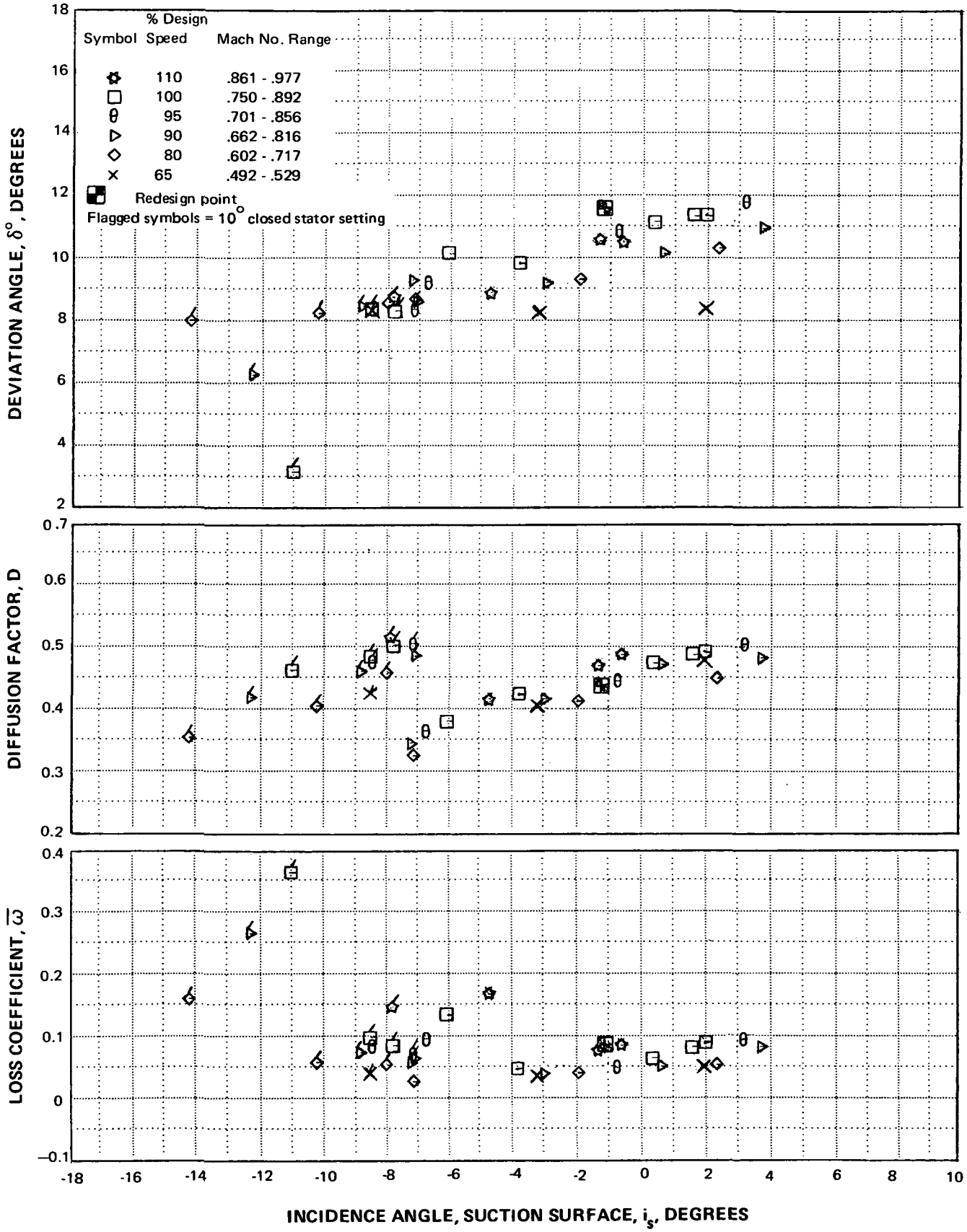


Figure 52d Stator Blade Element Performance With Uniform Inlet Flow Showing Effect of 10 Degree Closed Stator Setting at 30 Percent Span From Hub

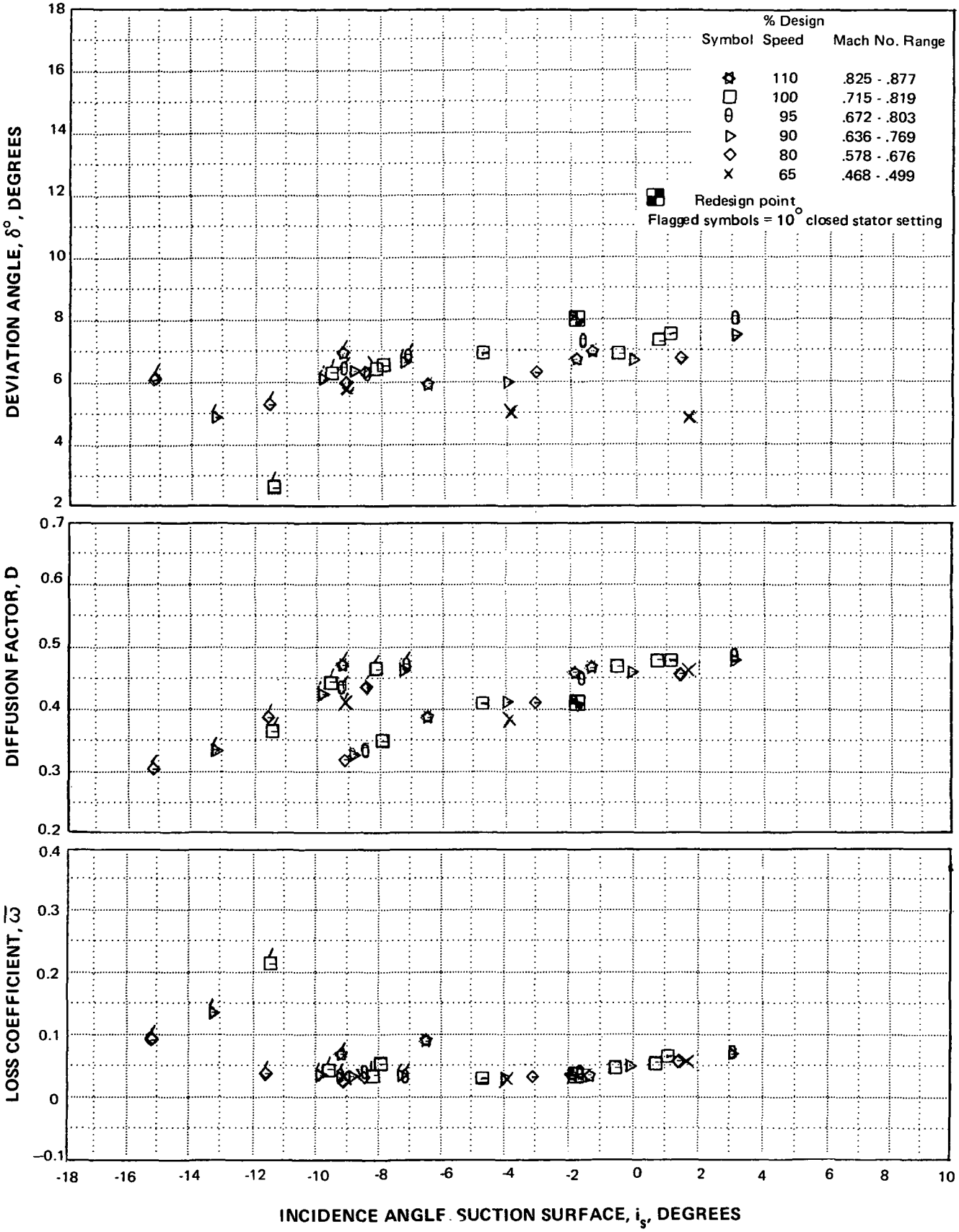


Figure 52e Stator Blade Element Performance With Uniform Inlet Flow Showing Effect of 10 Degree Closed Stator Setting at 50 Percent Span From Hub

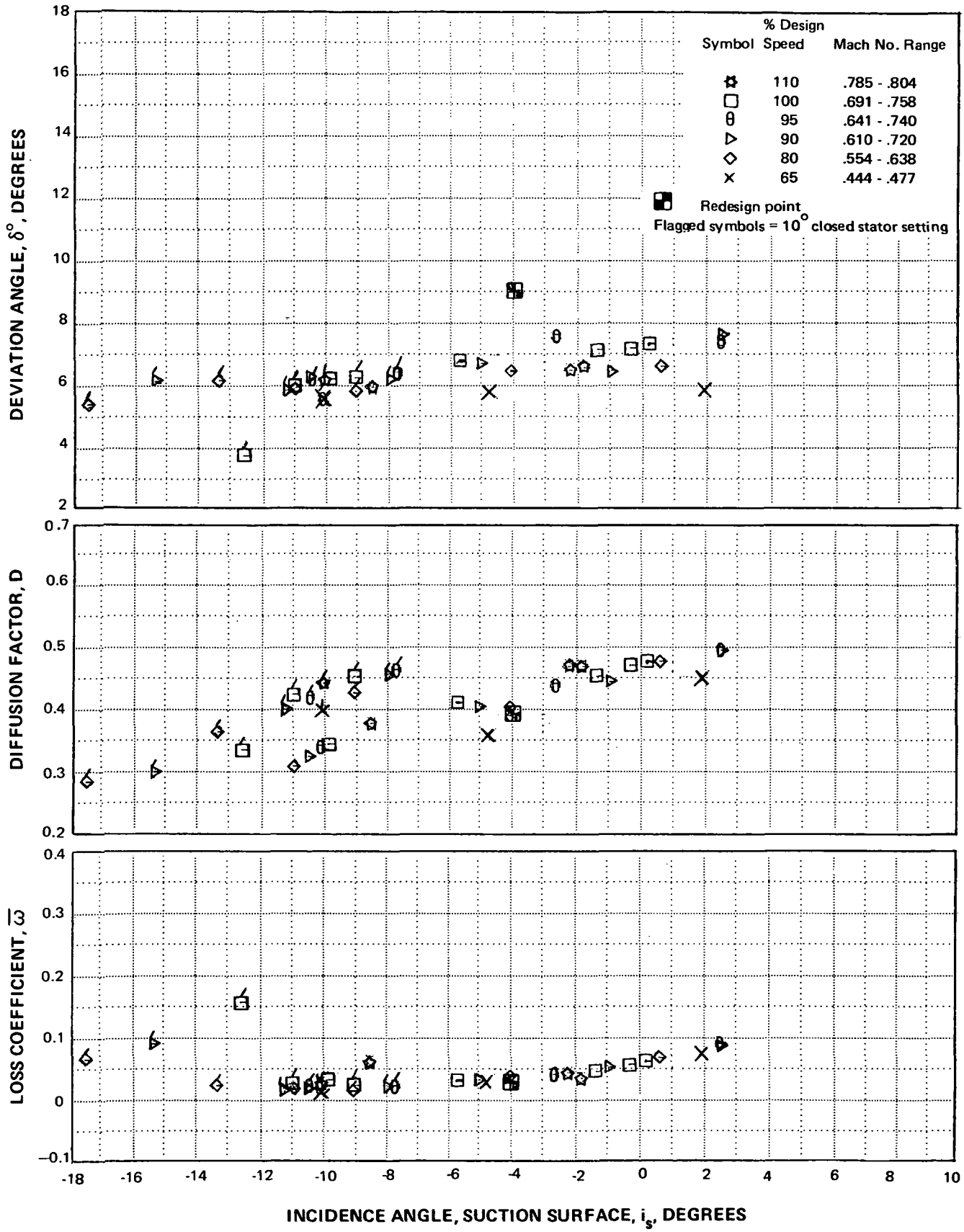


Figure 52f Stator Blade Element Performance With Uniform Inlet Flow Showing Effect of 10 Degree Closed Stator Setting at 70 Percent Span From Hub

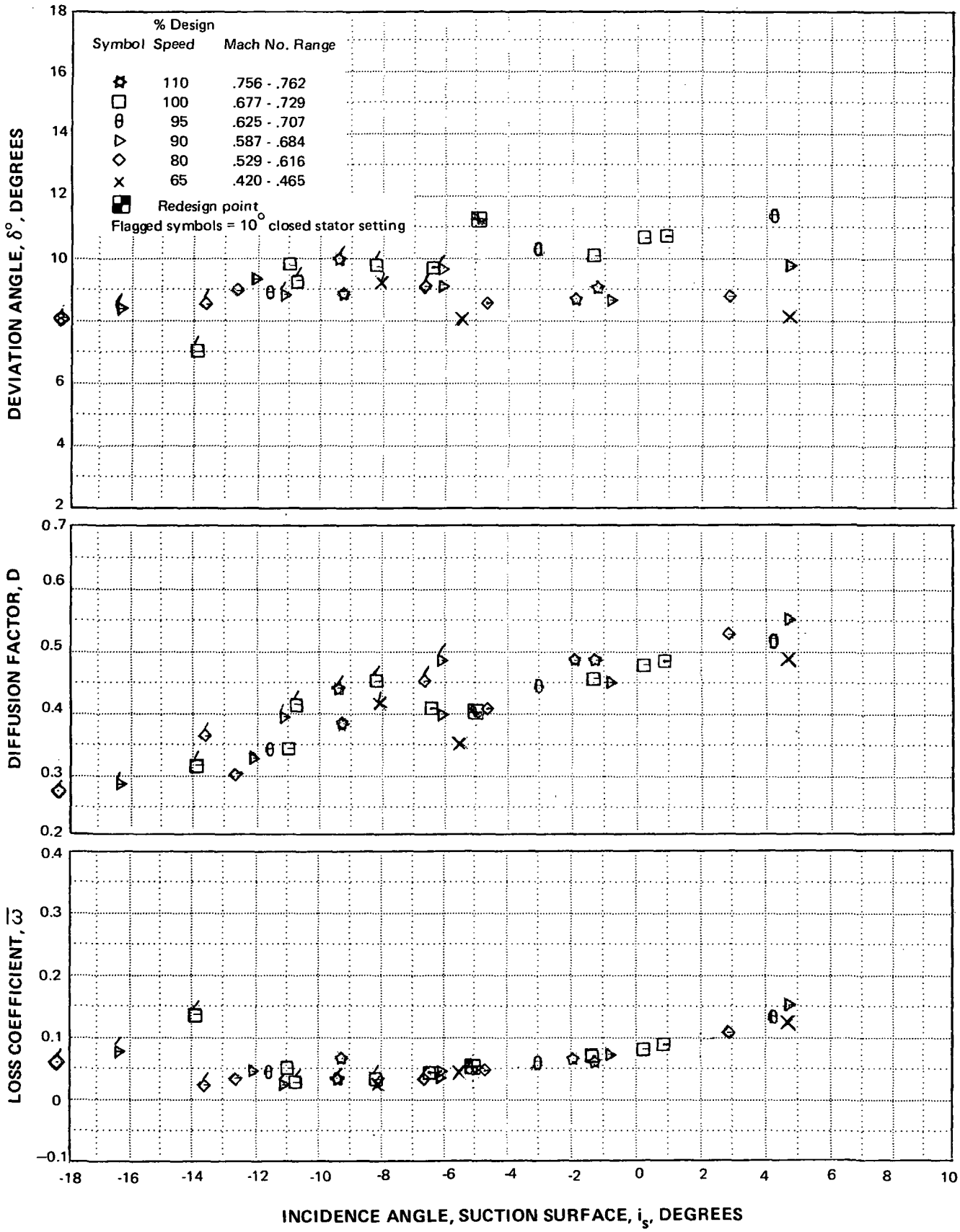


Figure 52g Stator Blade Element Performance With Uniform Inlet Flow Showing Effect of 10 Degree Closed Stator Setting at 85 Percent Span From Hub

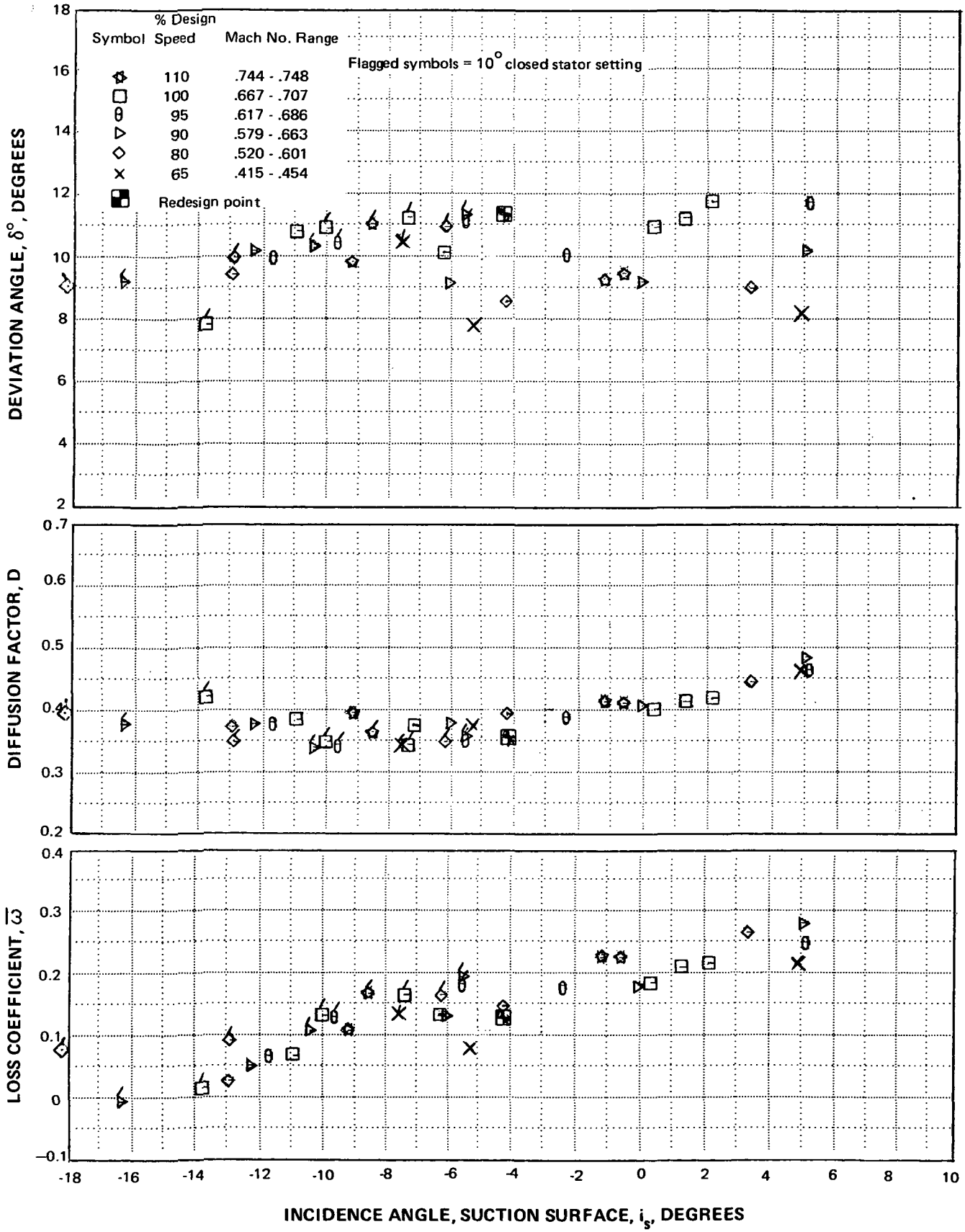


Figure 52h Stator Blade Element Performance With Uniform Inlet Flow Showing Effect of 10 Degree Closed Stator Setting at 90 Percent Span From Hub

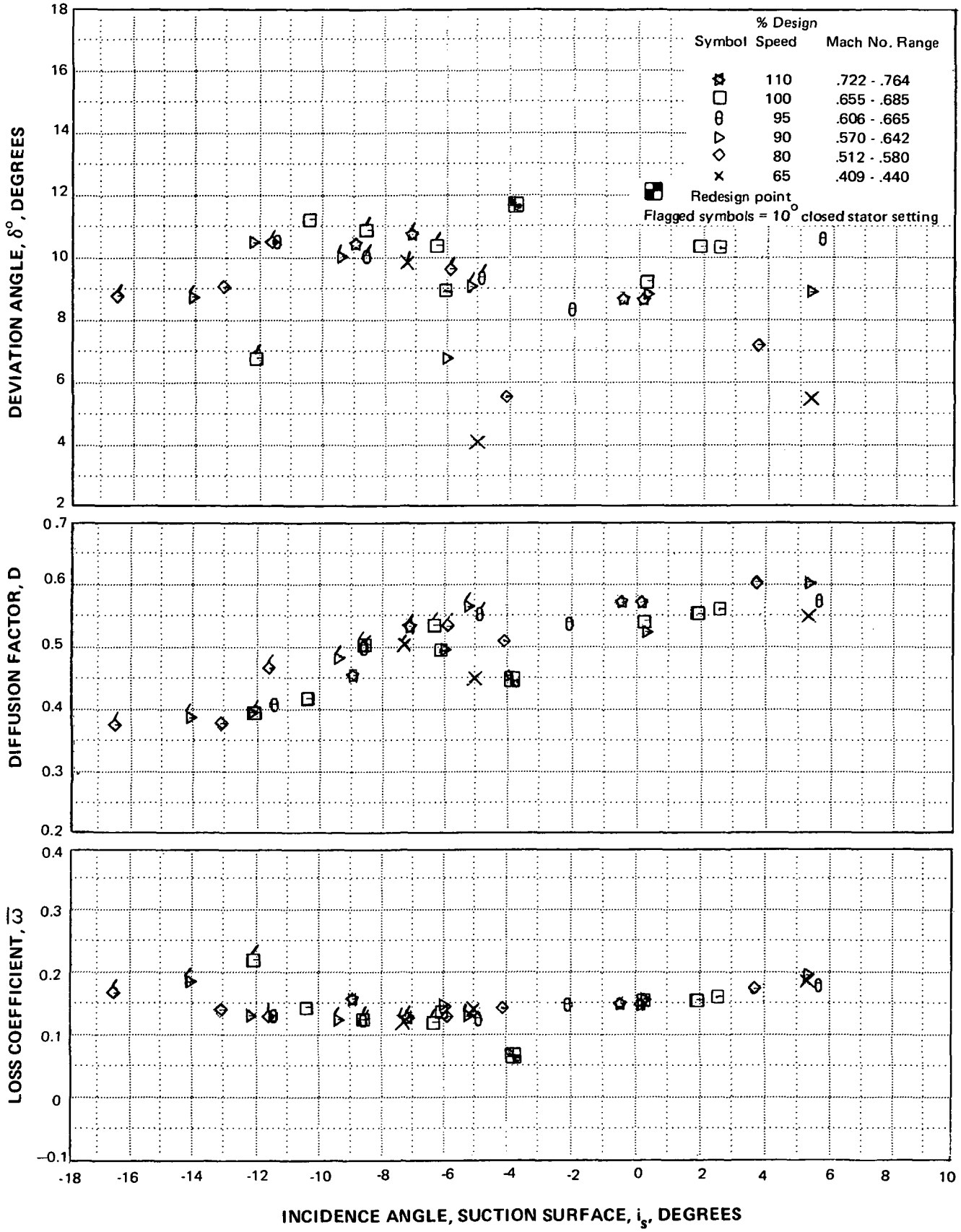


Figure 52i Stator Blade Element Performance With Uniform Inlet Flow Showing Effect of 10 Degree Closed Stator Setting at 95 Percent Span From Hub

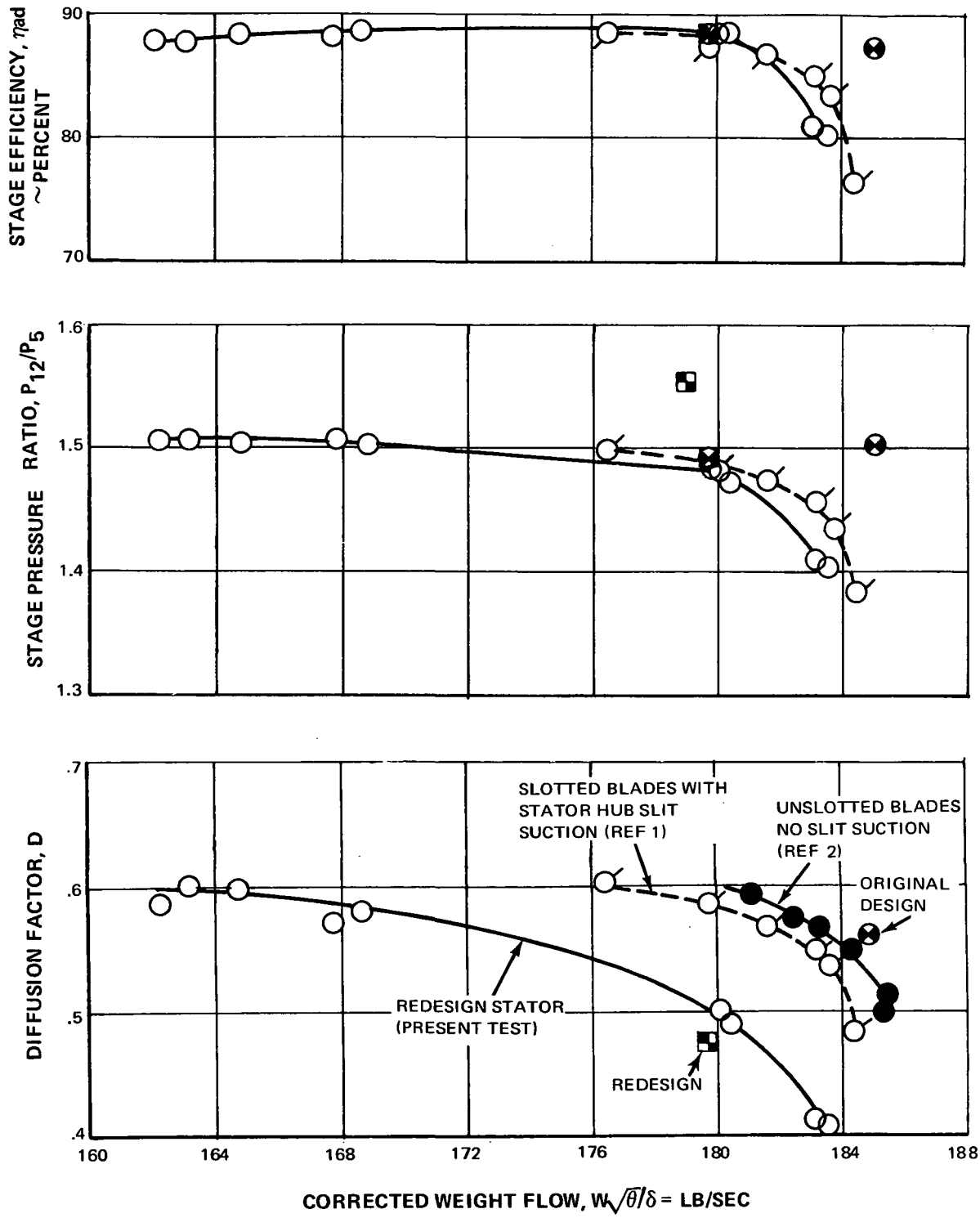


Figure 53 Stator Diffusion Factor, Stage Pressure Ratio, and Stage Efficiency as a Function of Corrected Weight Flow, 10 Percent Span at Design Speed

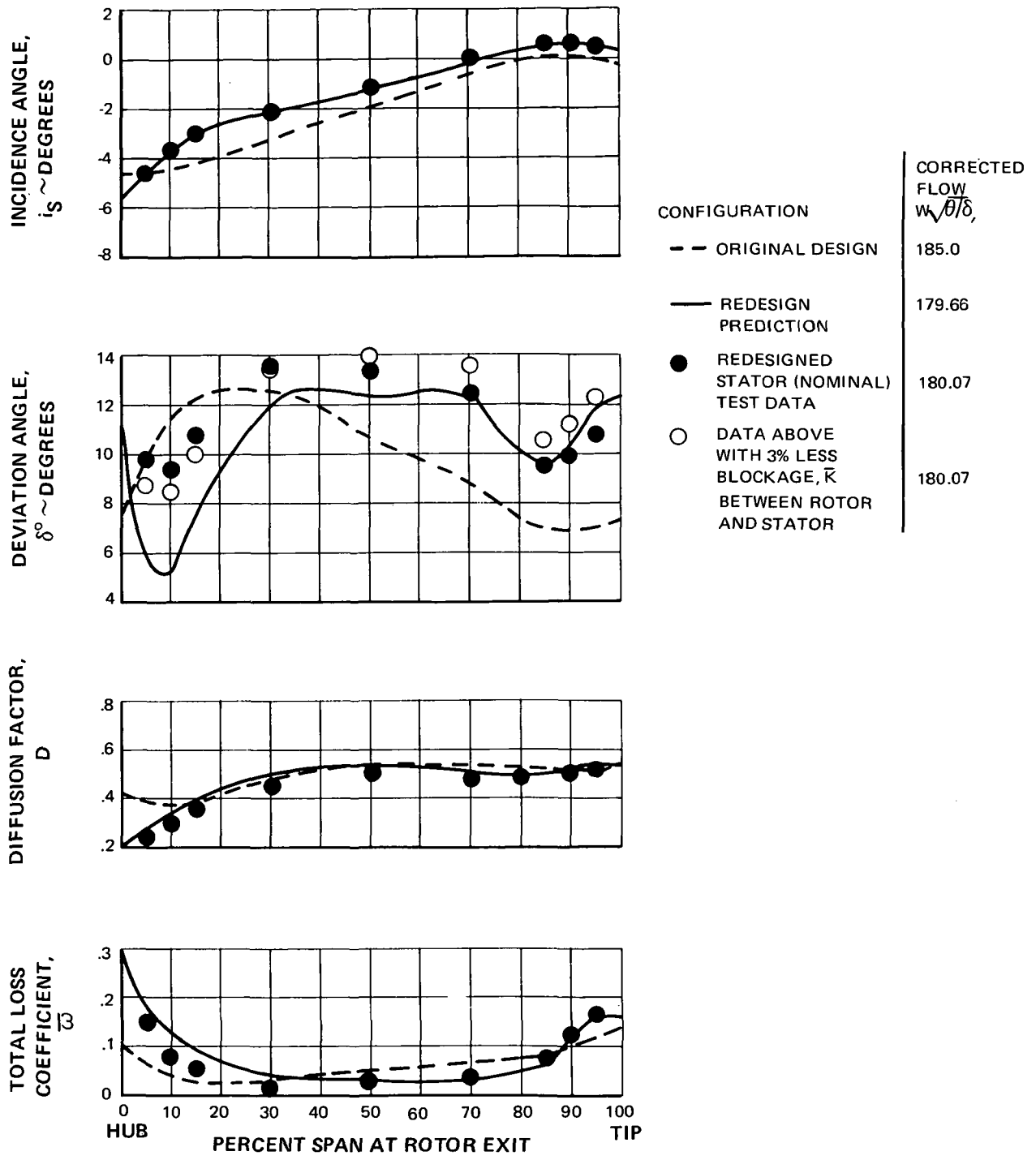


Figure 54 Spanwise Distribution of Losses, Deviation, and Diffusion Factors for Rotor at Design Speed

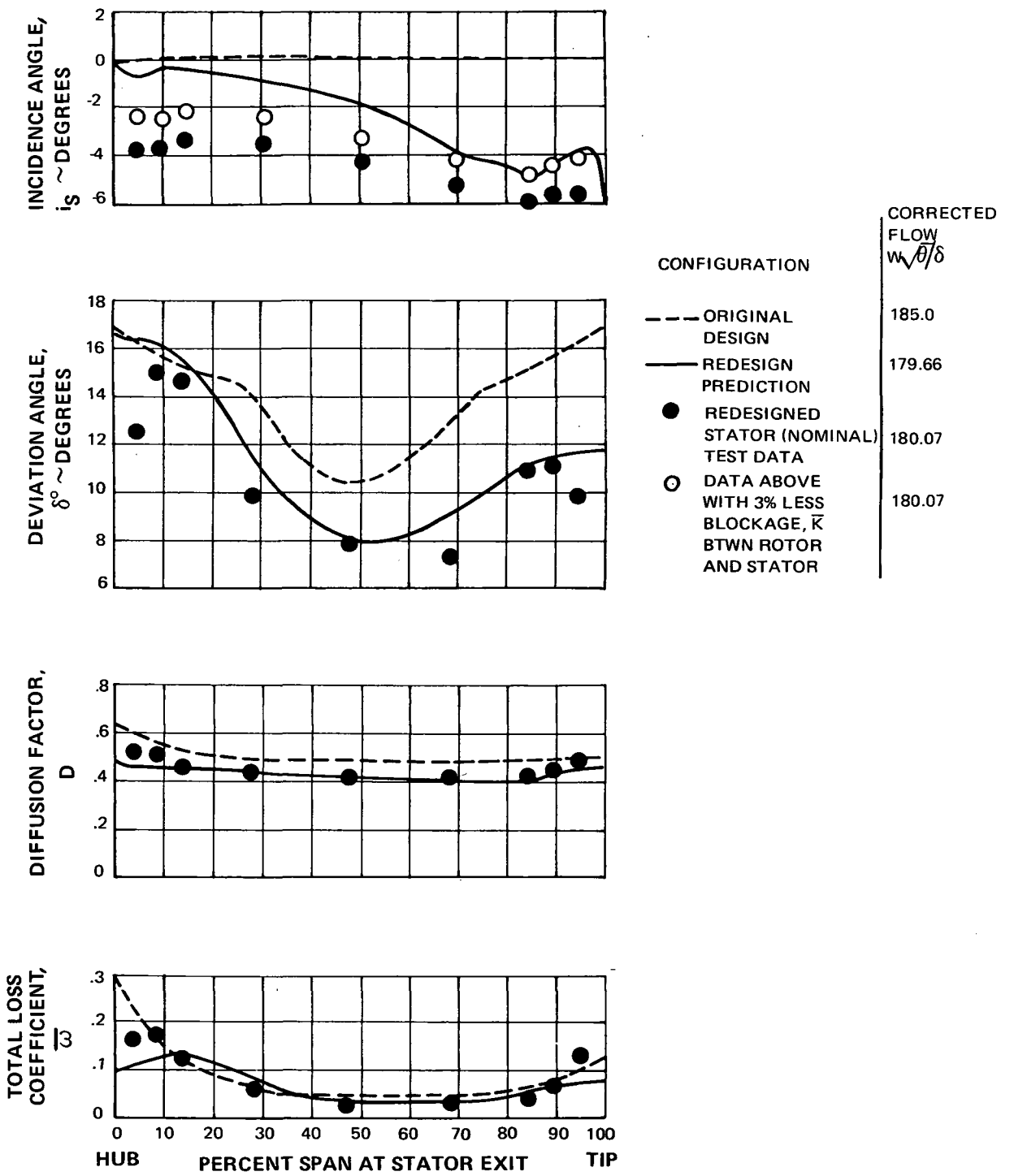


Figure 55 Spanwise Distribution of Losses, Deviation, and Diffusion Factors for Stator at Design Speed

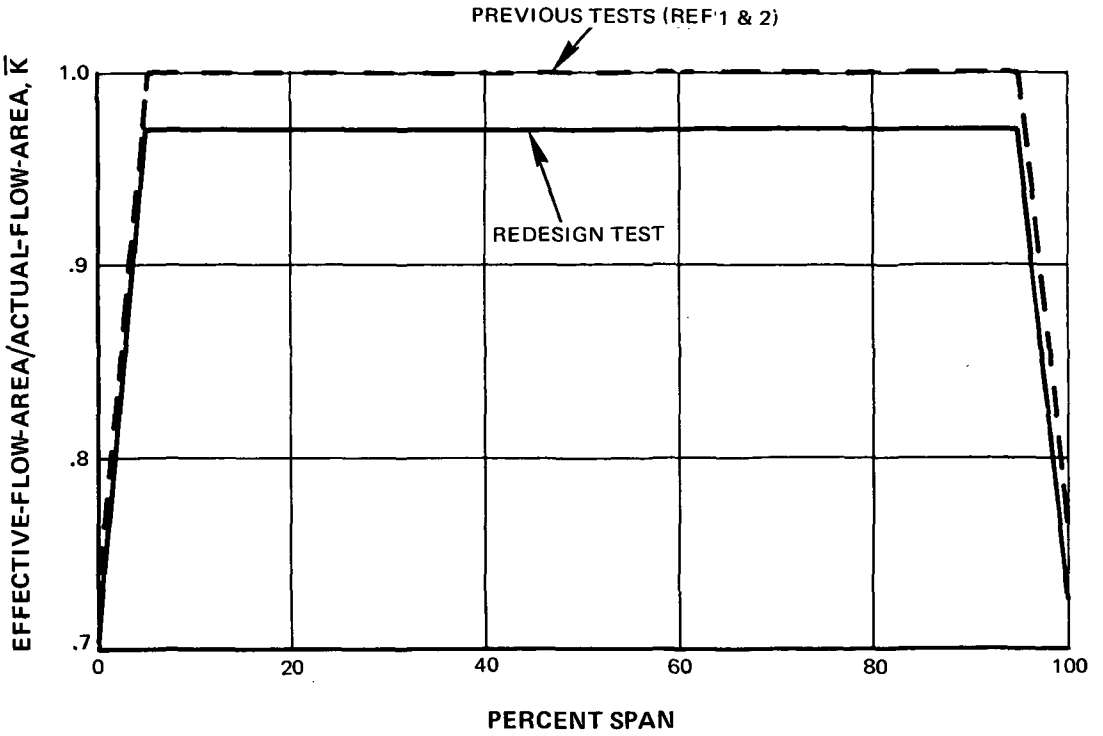


Figure 56 Blockage Factor Distributions at the Rotor Exit and Stator Inlet for Data Reduction

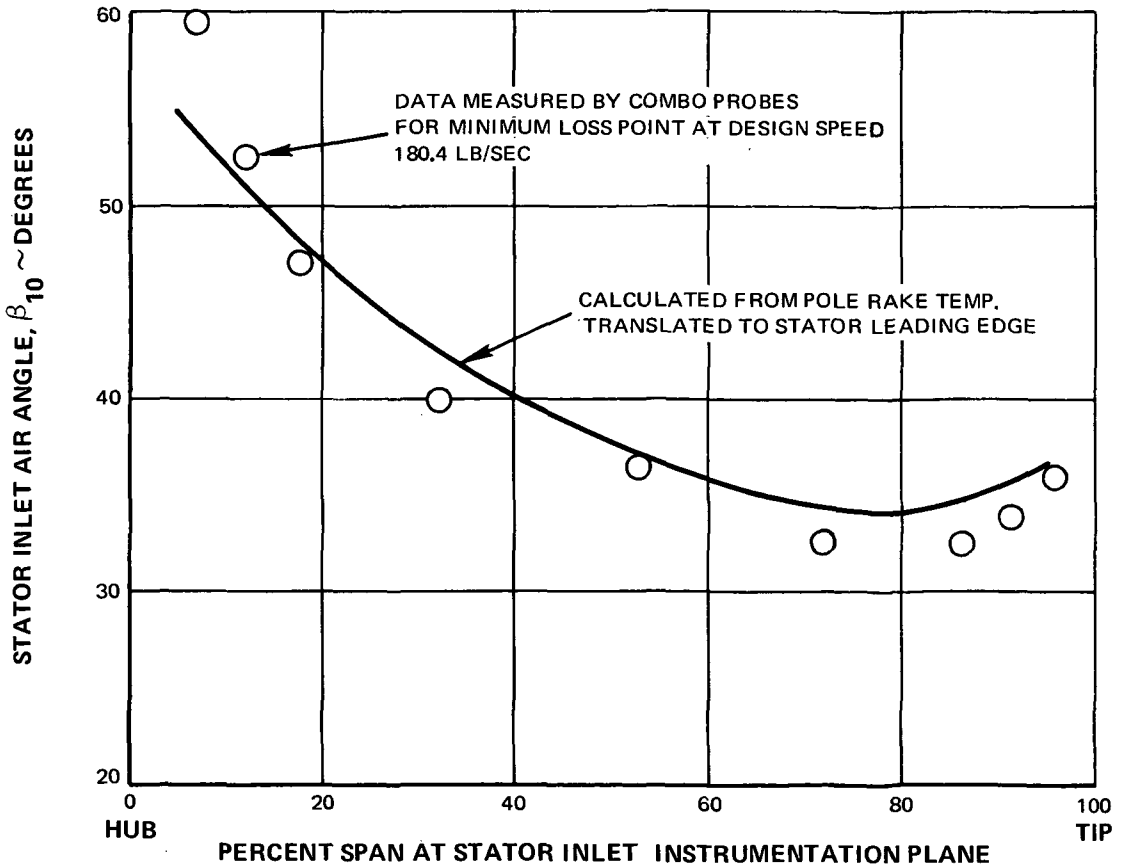


Figure 57 Calculated and Measured Stator Inlet Air Angles as a Function of Span at Design Speed

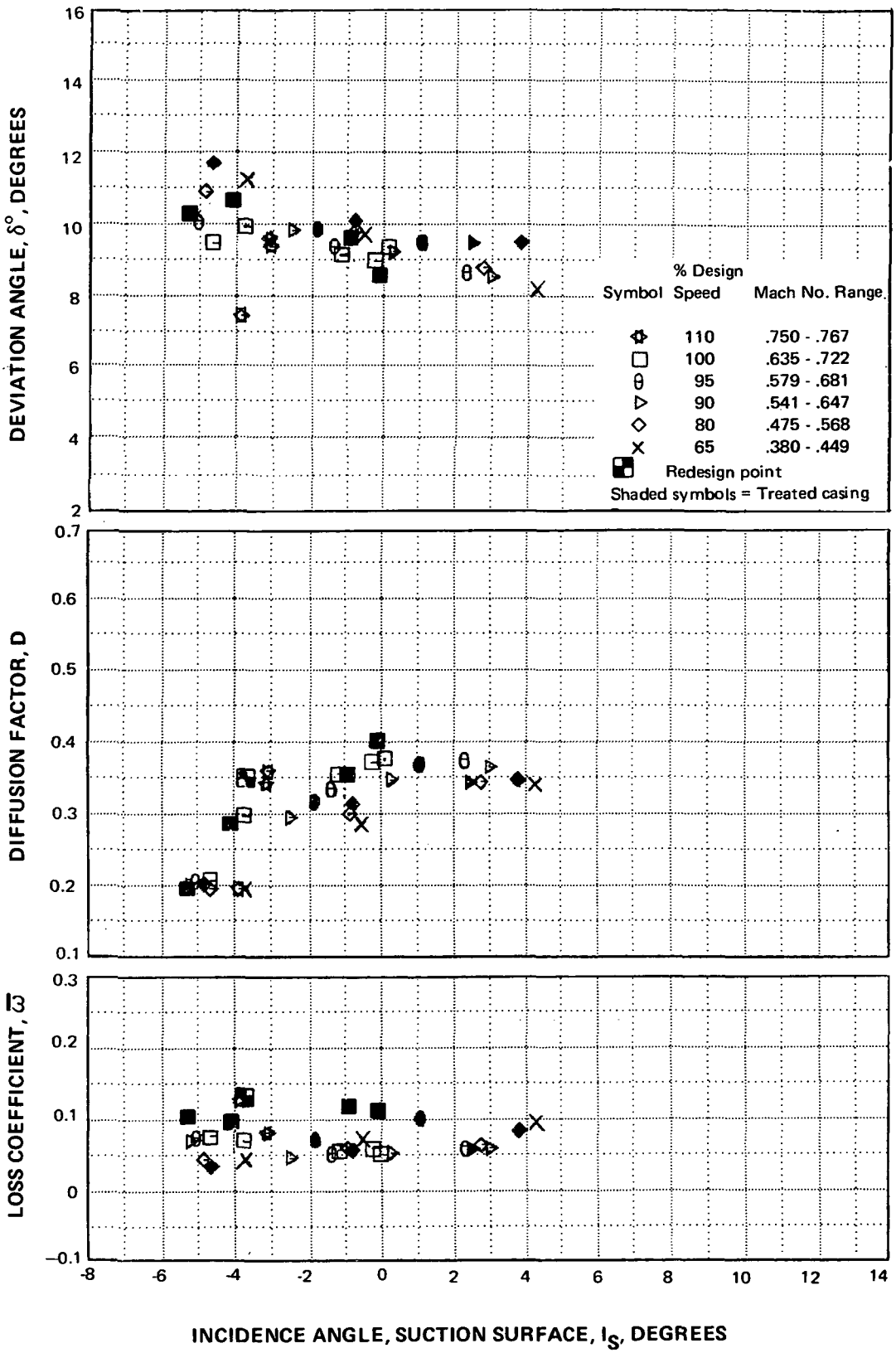


Figure 58a Slotted Rotor Blade Element Performance With Uniform Inlet Flow Showing the Effect of Skewed Slot Tip Treatment at 10 Percent Span From Hub

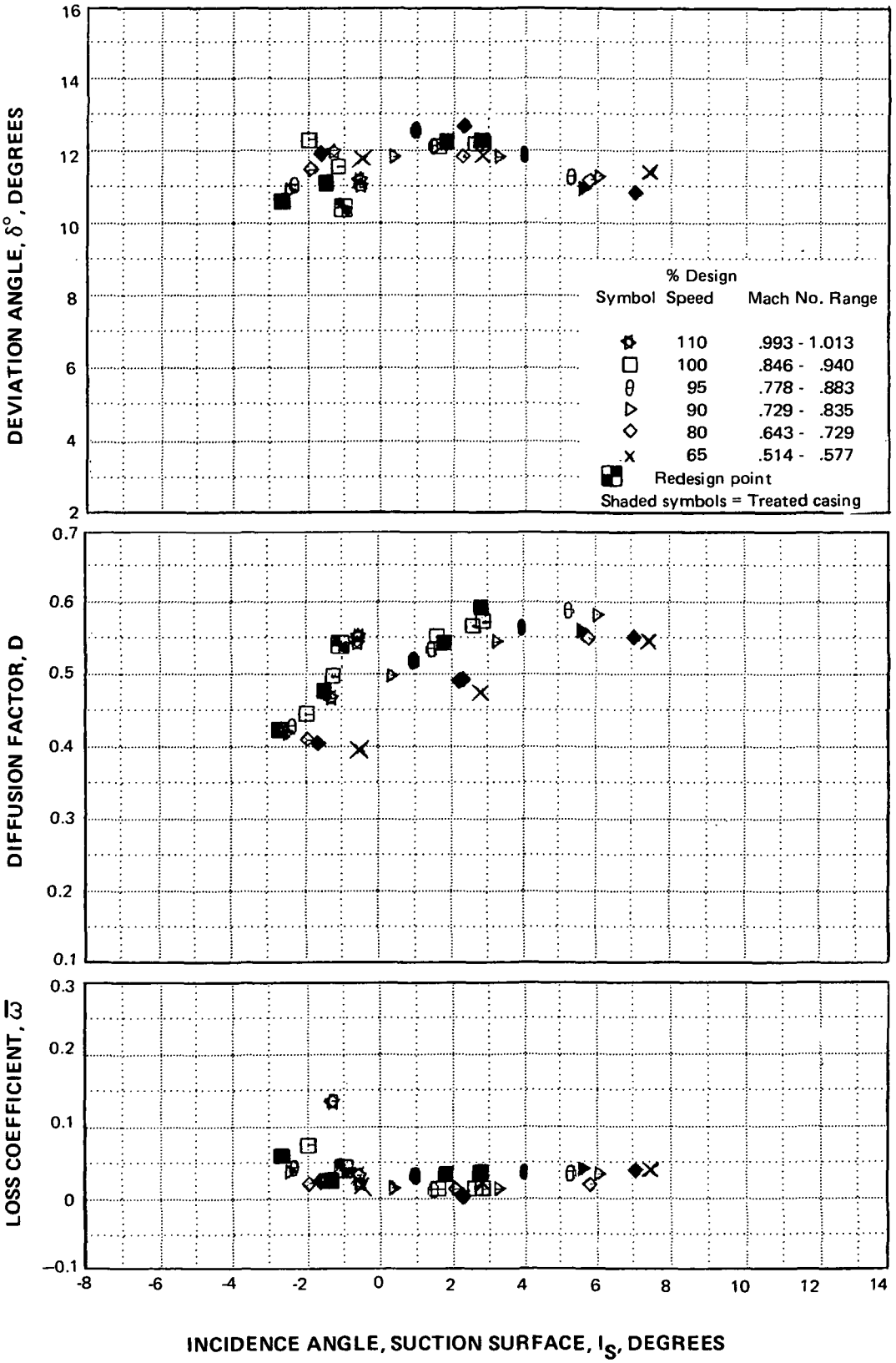


Figure 58b Slotted Rotor Blade Element Performance With Uniform Inlet Flow Showing the Effect of Skewed Slot Tip Treatment at 50 Percent Span From Hub

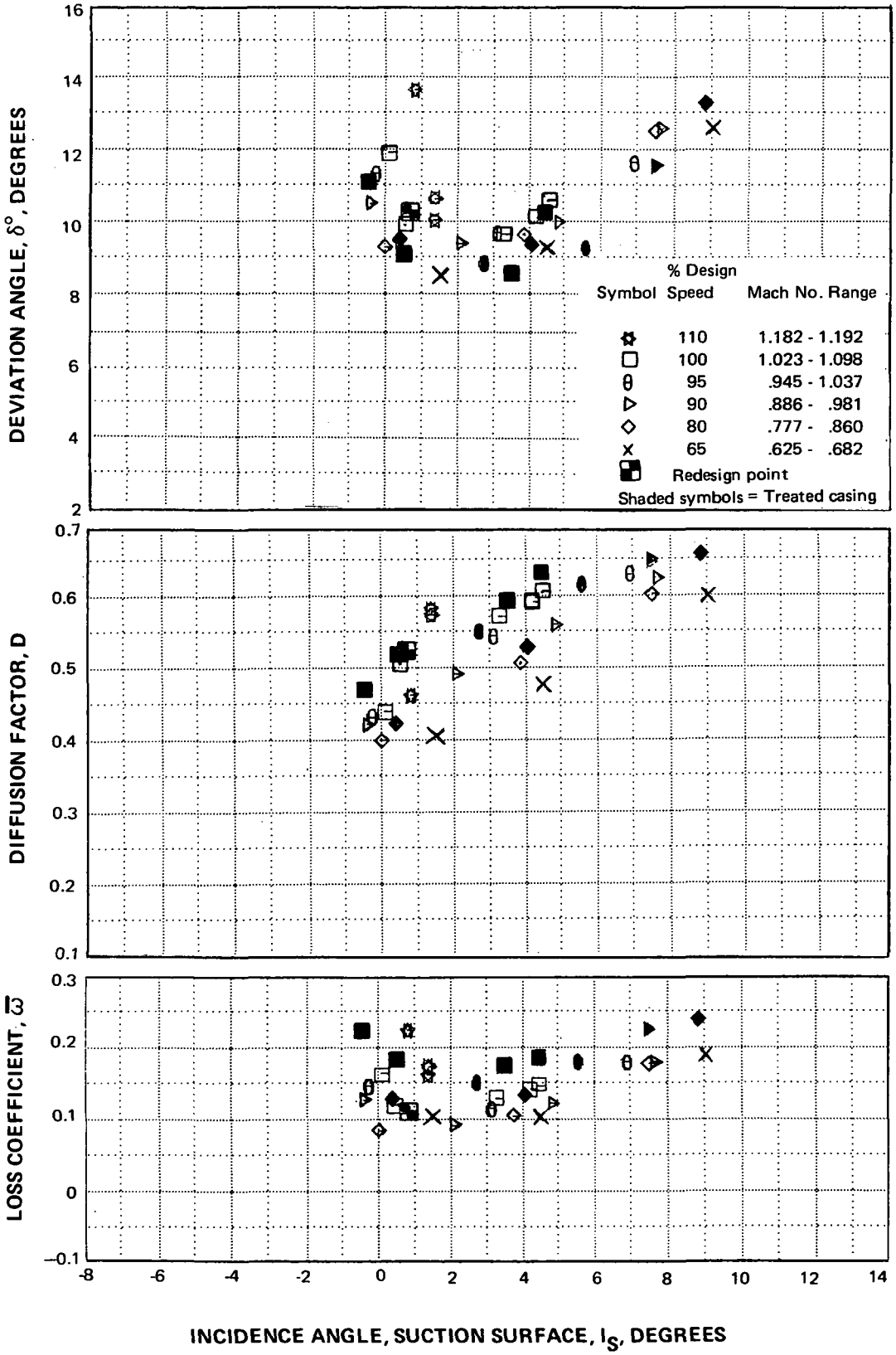


Figure 58c Slotted Rotor Blade Element Performance With Uniform Inlet Flow Showing the Effect of Skewed Slot Tip Treatment at 90 Percent Span From Hub

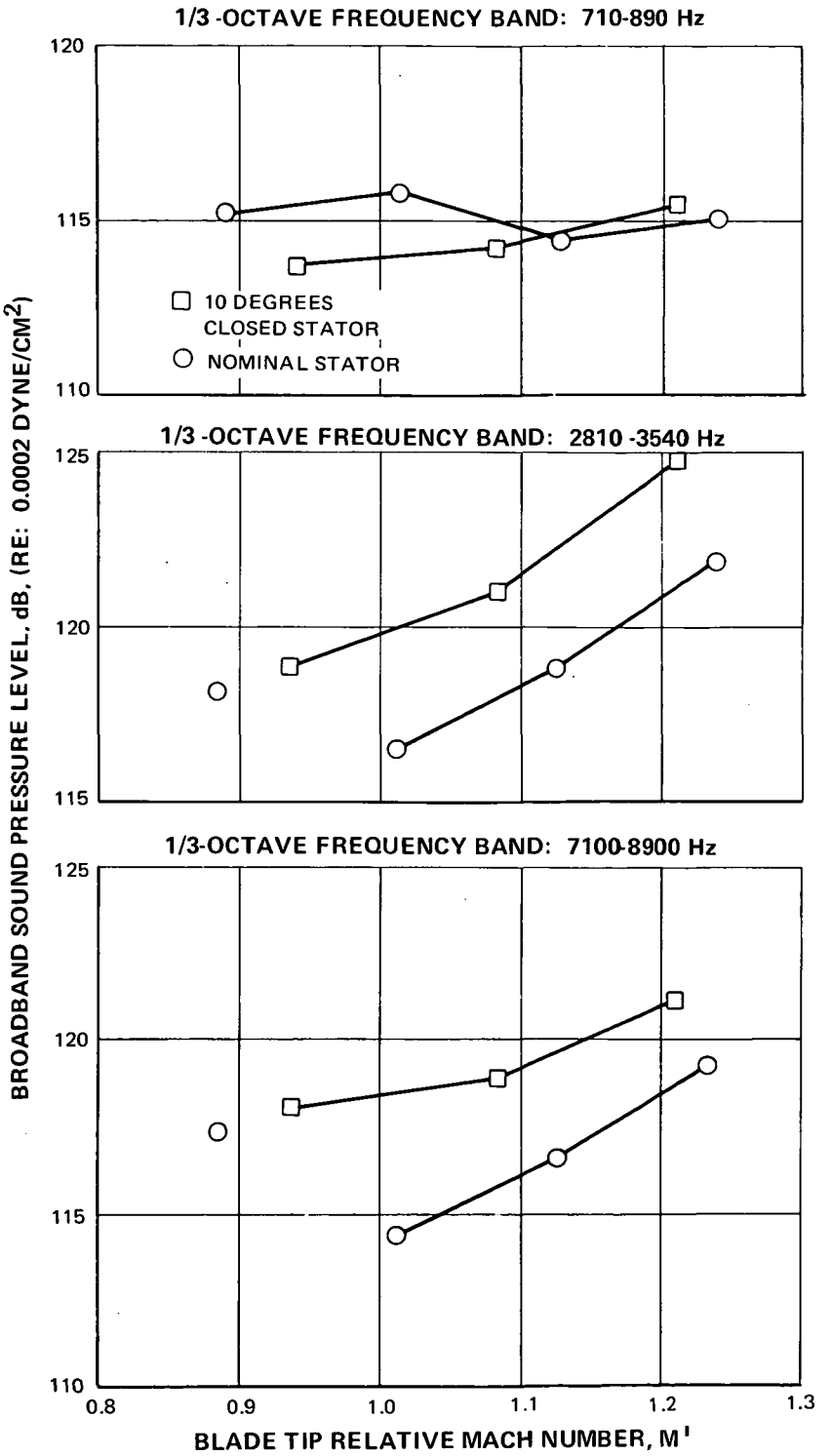


Figure 59 Broadband Sound Pressure Levels in One-Third Octave Bands at Fan Inlet With Nominal and Ten-Degree Closed Stator Settings, Open Throttle

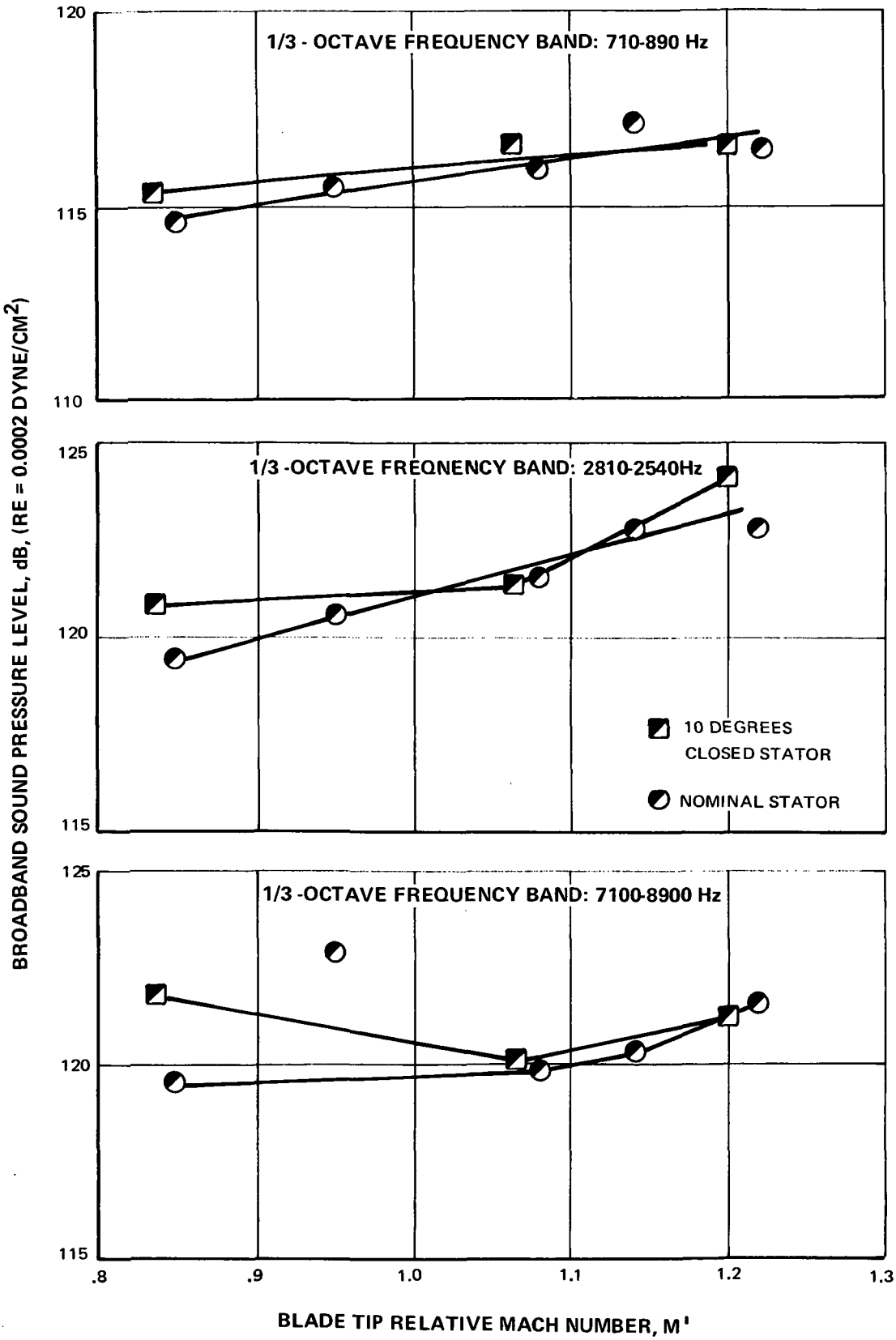


Figure 60 Broadband Sound Pressure Levels in One-Third Octave Bands at Fan Inlet With Nominal and Ten-Degree Closed Stator Settings, Part Throttle

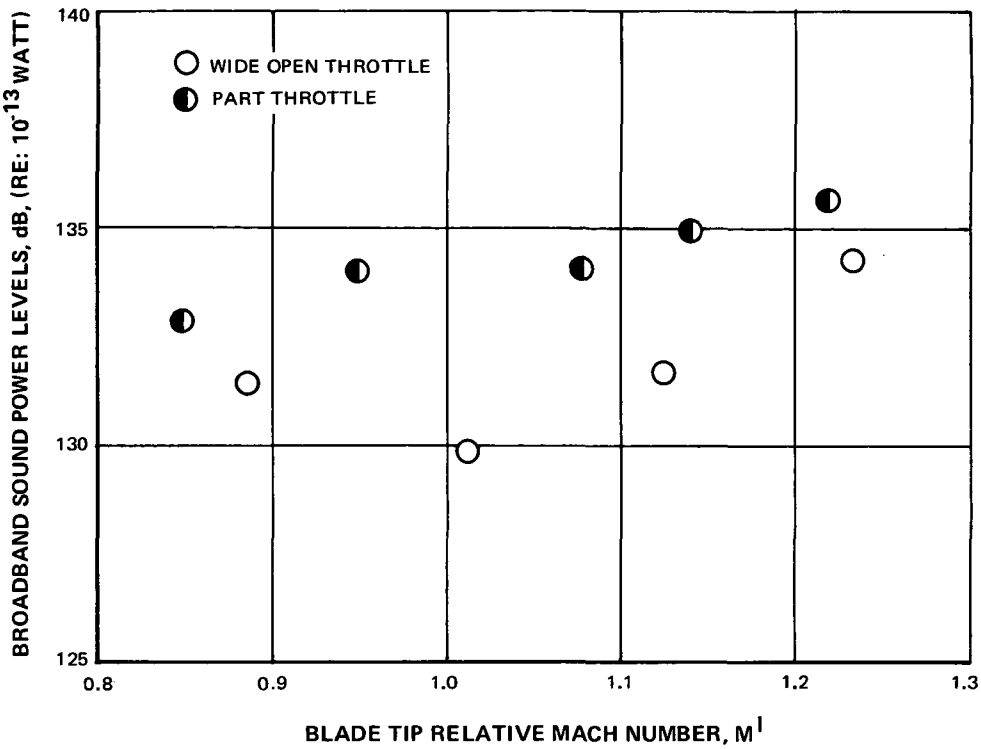


Figure 61 Total Inlet Broadband Sound Power Level, Nominal Stator

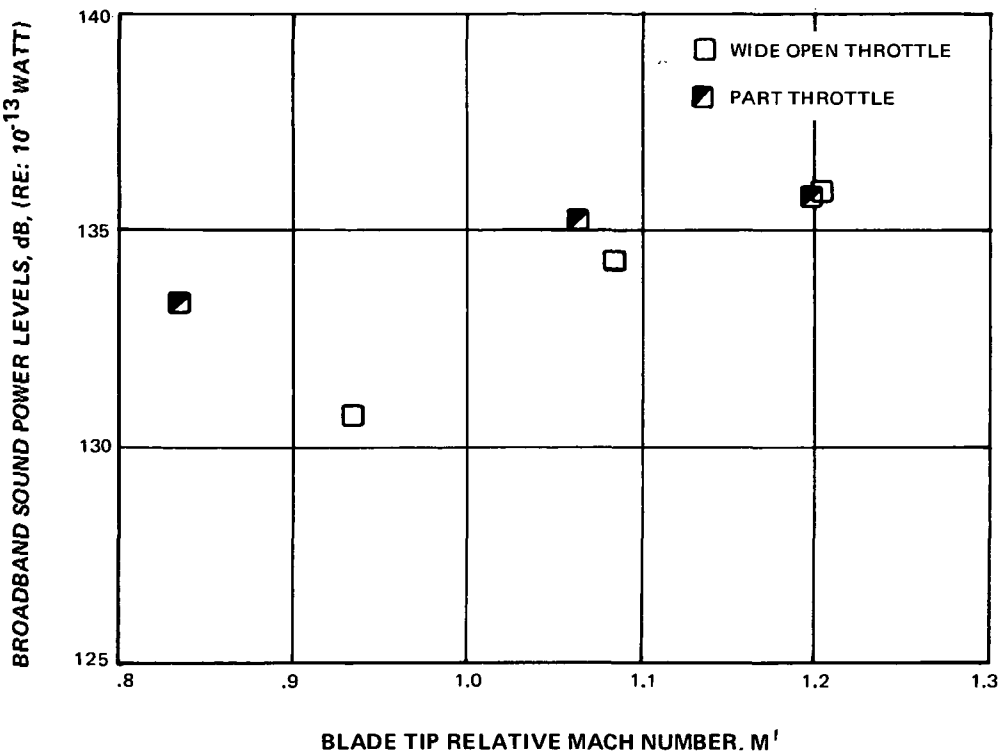


Figure 62 Total Inlet Broadband Sound Power Level, Ten-Degree Closed Stator Setting

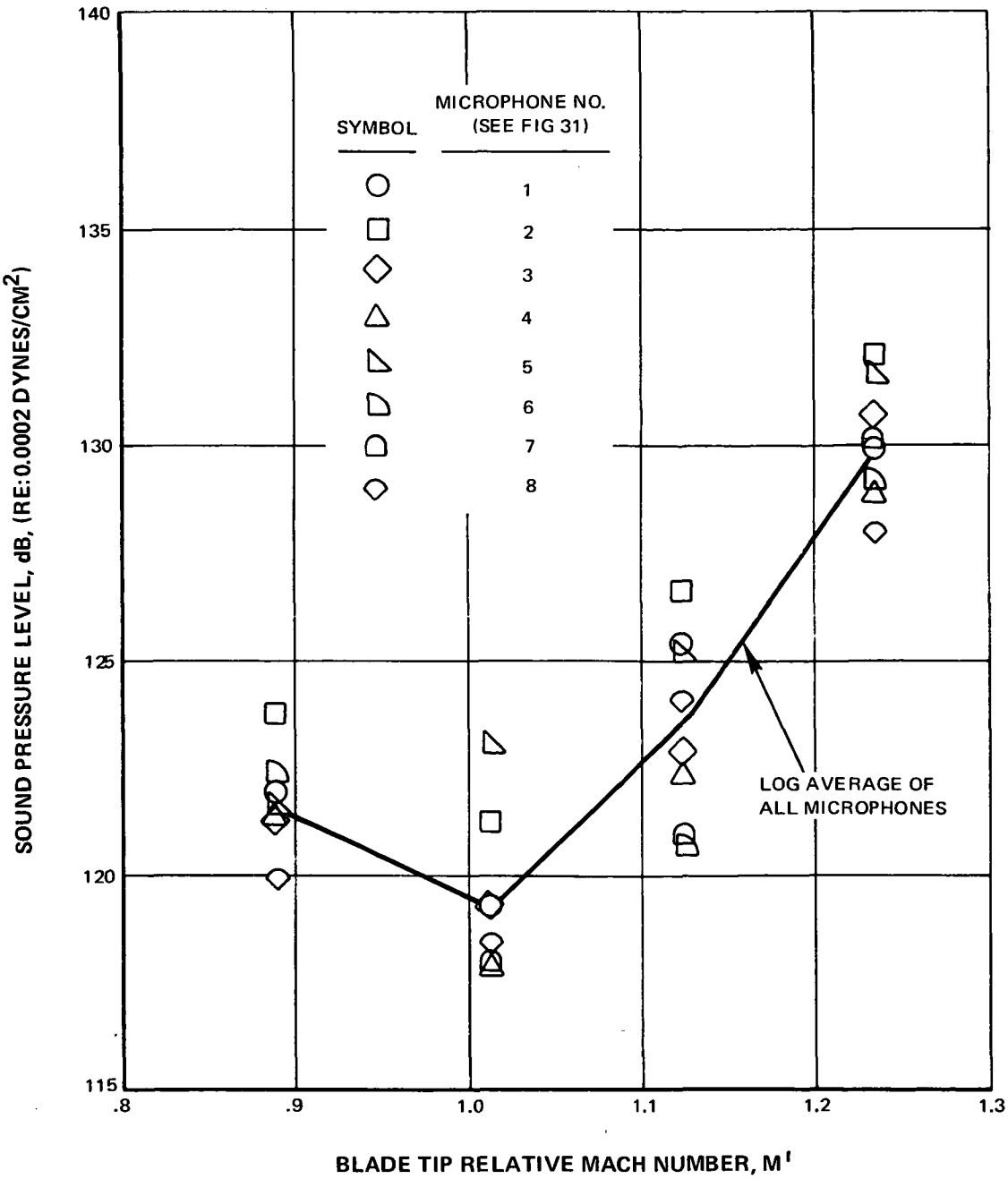


Figure 63 Time-Averaged Blade-Passing-Frequency Inlet Noise For Fan With Nominal Stator at Wide Open Throttle

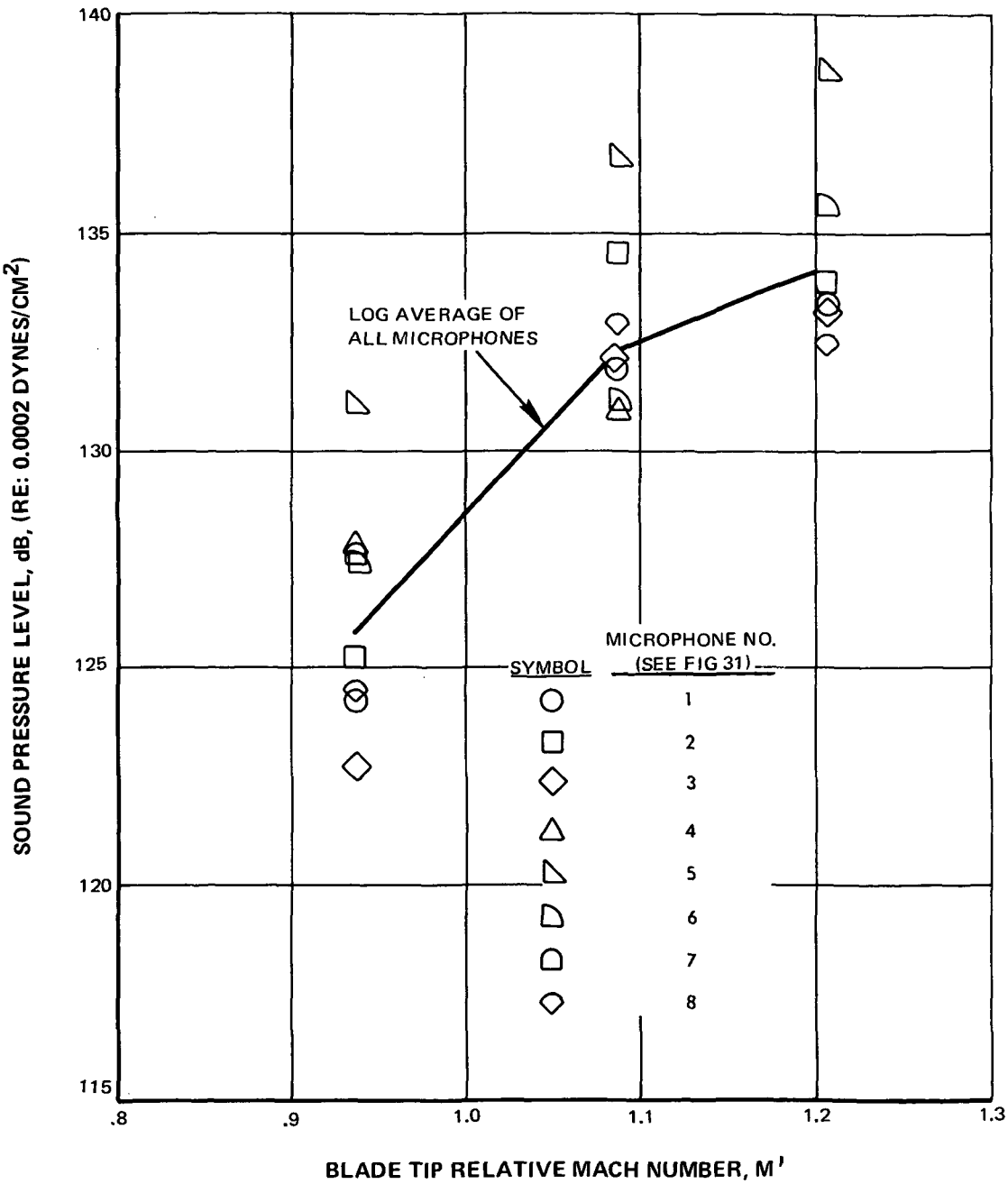


Figure 64 Time-Averaged Blade-Passing-Frequency Inlet Noise For Fan With Ten-Degree Closed Stator at Wide Open Throttle

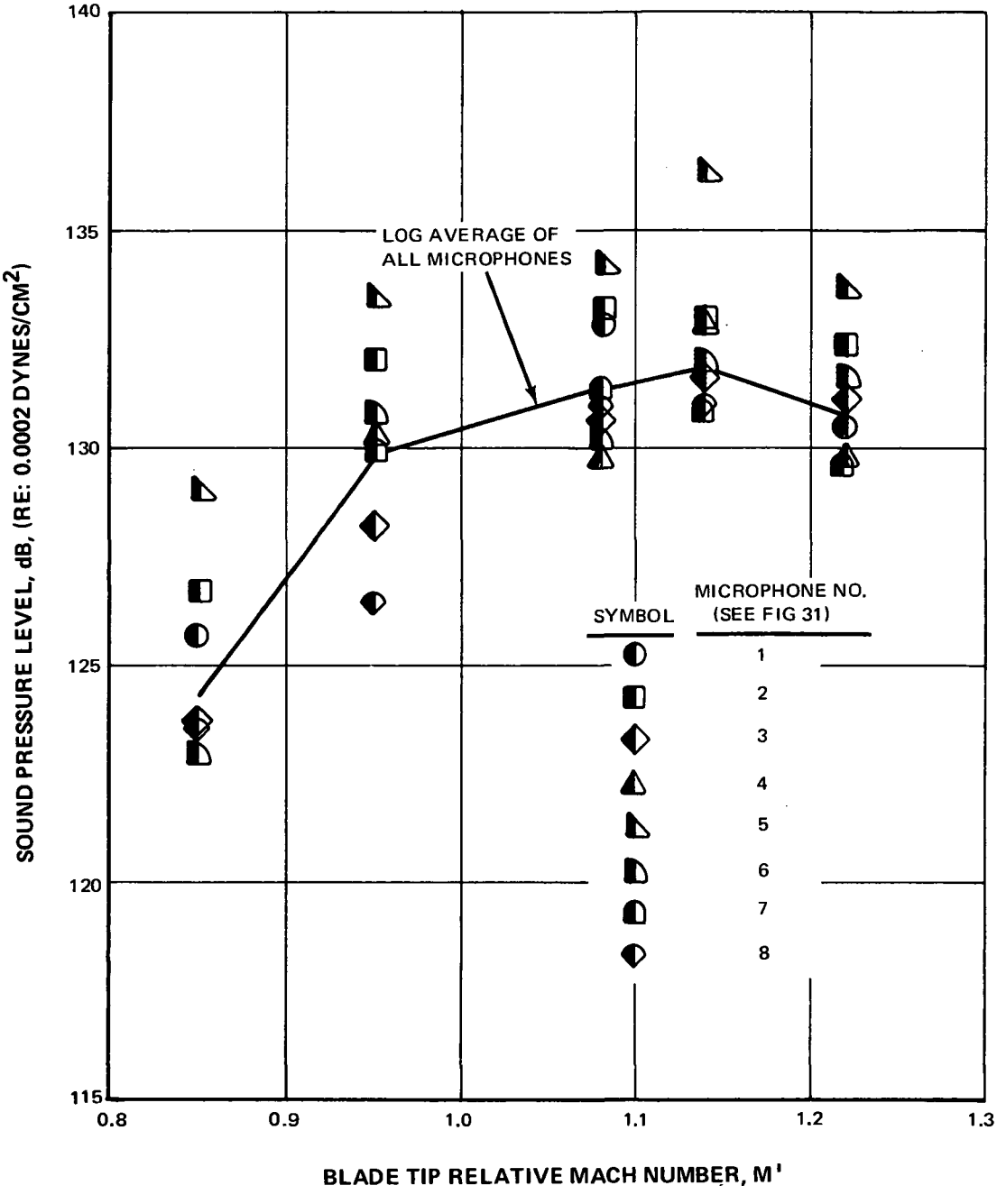


Figure 65 Time-Averaged Blade-Passing-Frequency Inlet Noise For Fan With Nominal Stator at Part Throttle

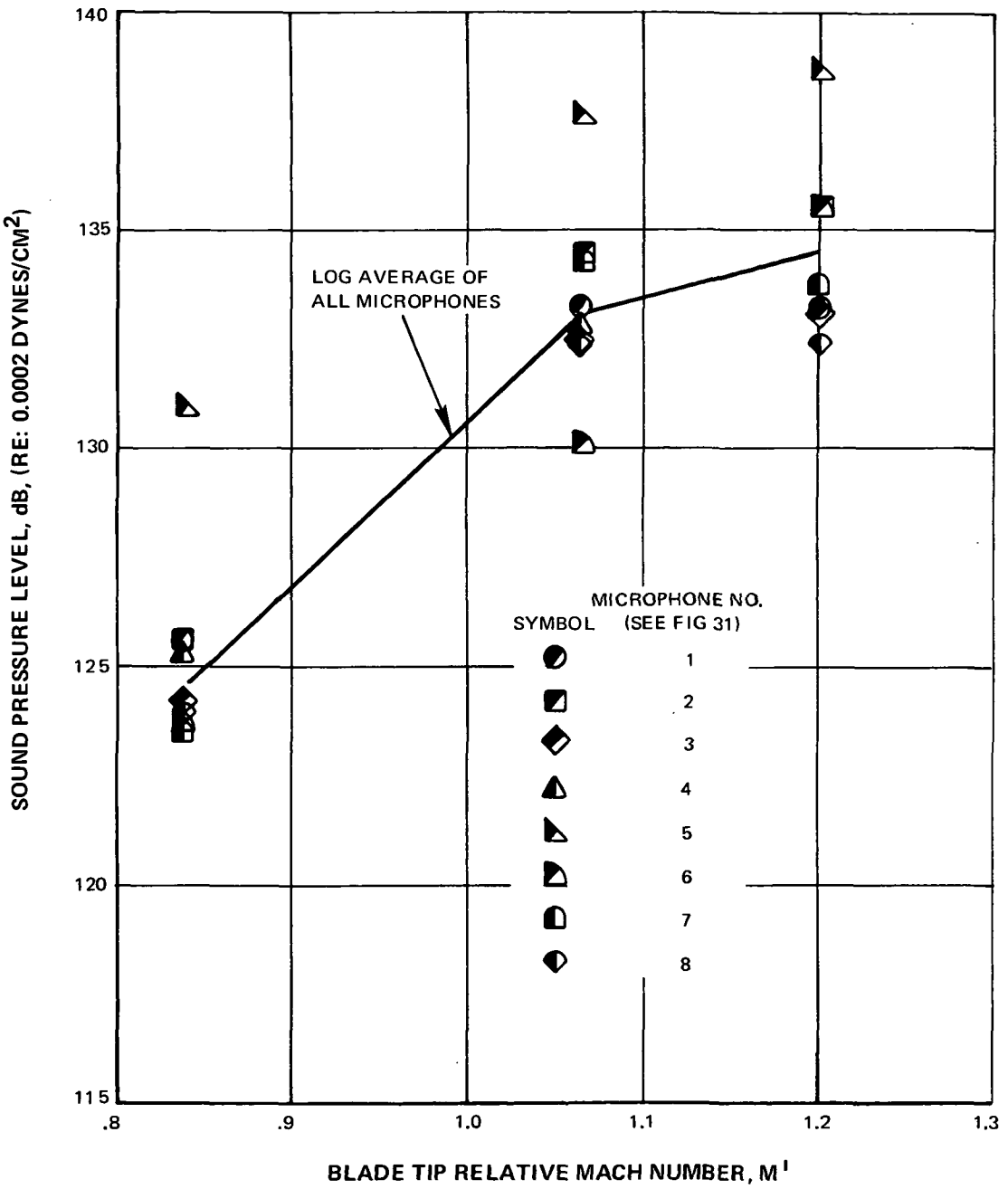


Figure 66 Time-Averaged Blade-Passing-Frequency Inlet Noise For Fan With Ten-Degree Closed Stator at Part Throttle

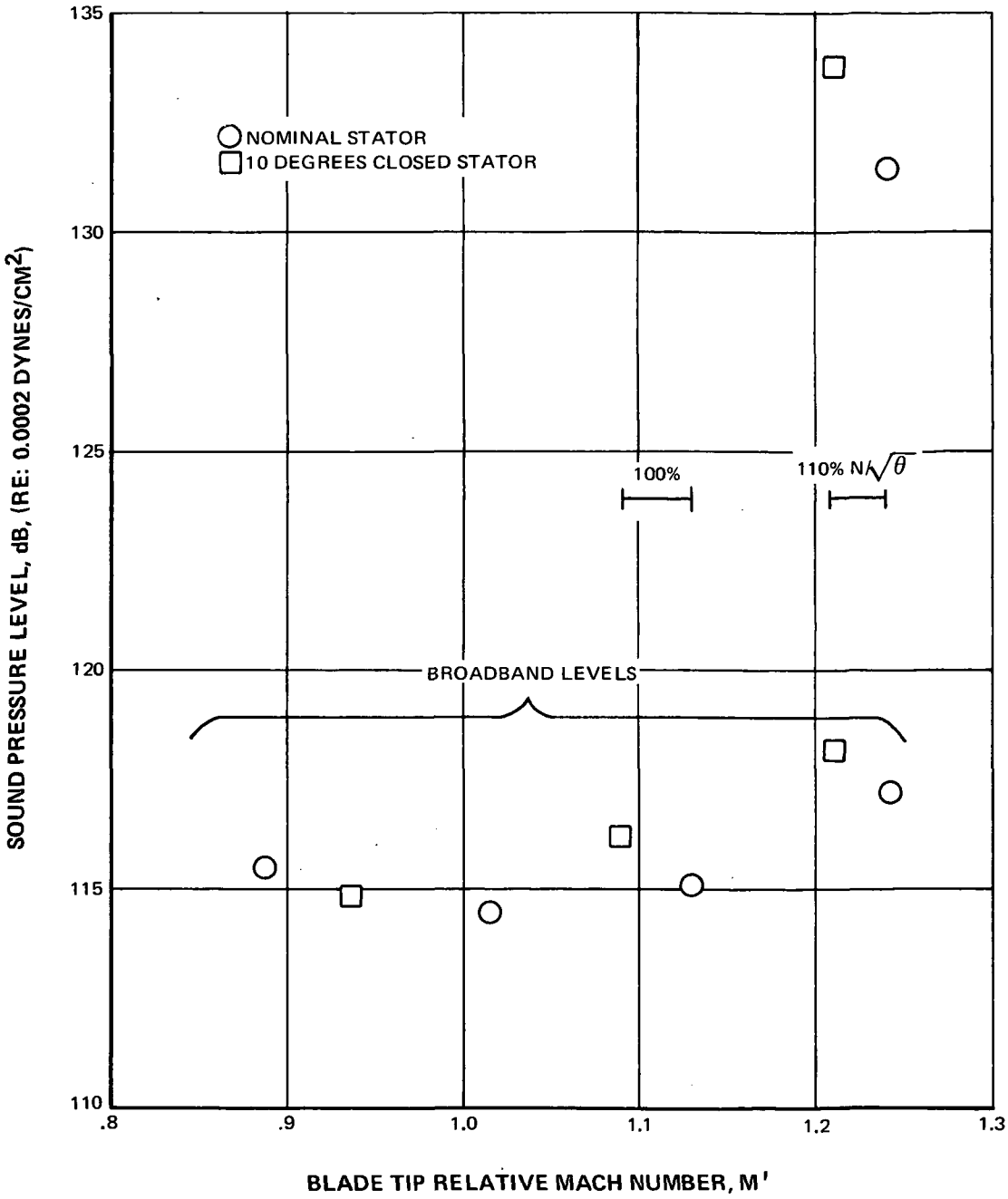


Figure 67 Supersonic Fan Inlet Noise and Integrated Broadband Sound Pressure Levels With Nominal and Ten-Degree Closed Stator Settings at Wide Open Throttle

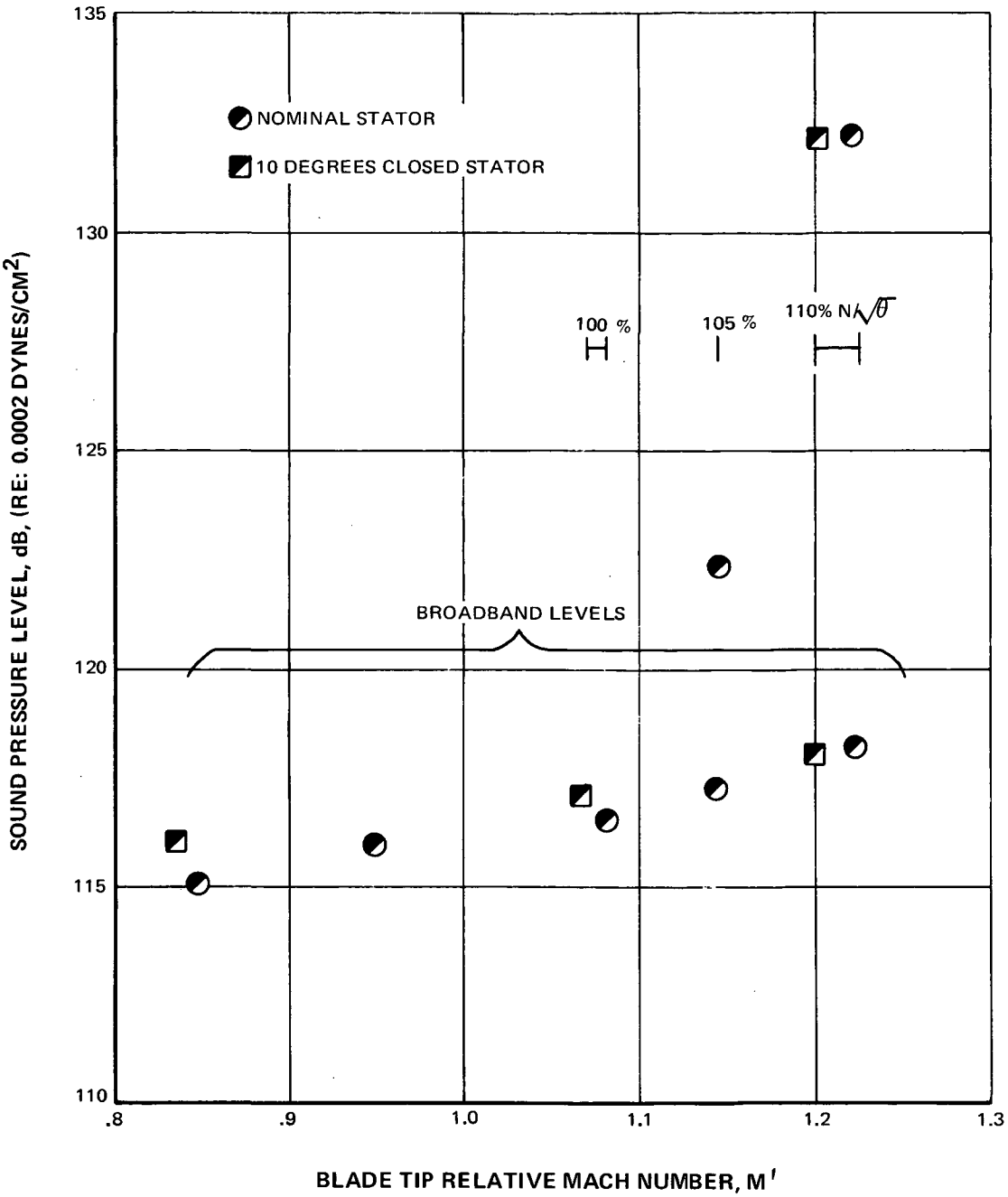


Figure 68 Supersonic Fan Inlet Noise and Integrated Broadband Sound Pressure Levels With Nominal and Ten-Degree Closed Stator Settings at Part Throttle

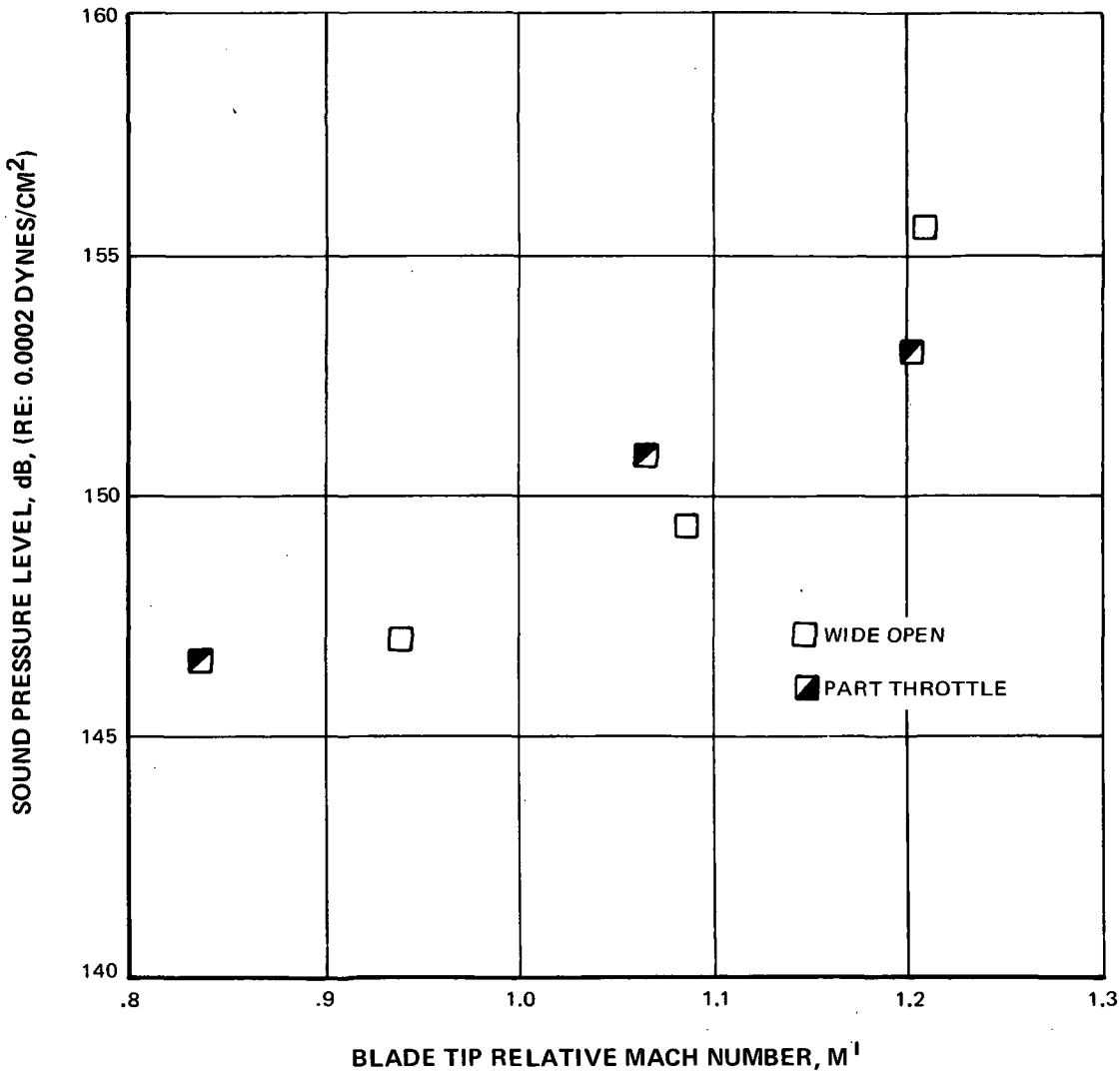


Figure 69 Time-Averaged Blade-Passing-Frequency Noise Downstream of Fan With Ten-Degree Closed Stator Setting

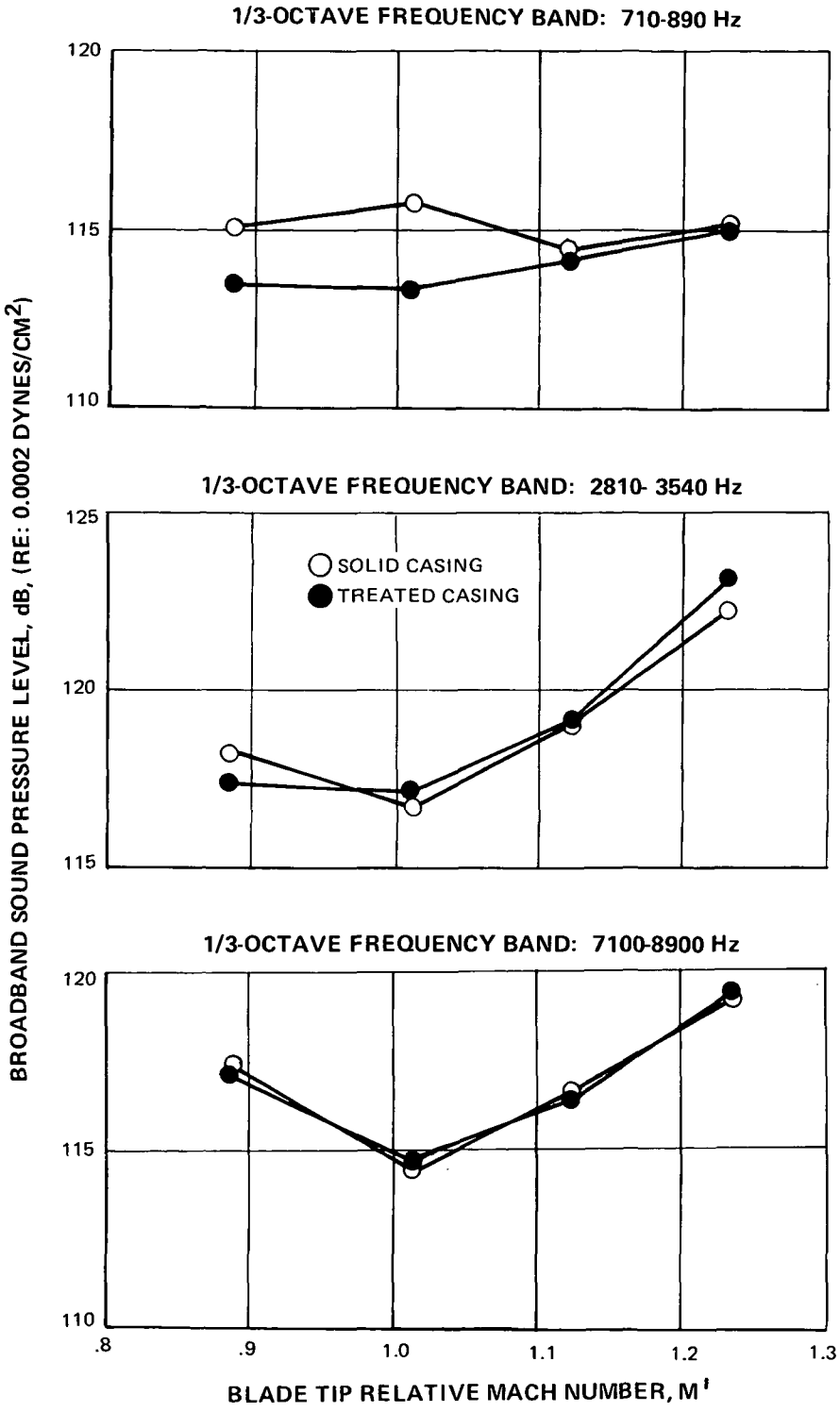


Figure 70 Inlet Broadband Sound Pressure Level in One-Third Octave Bands, With and Without Rotor Tip Casing Treatment, Nominal Stator at Wide Open Throttle

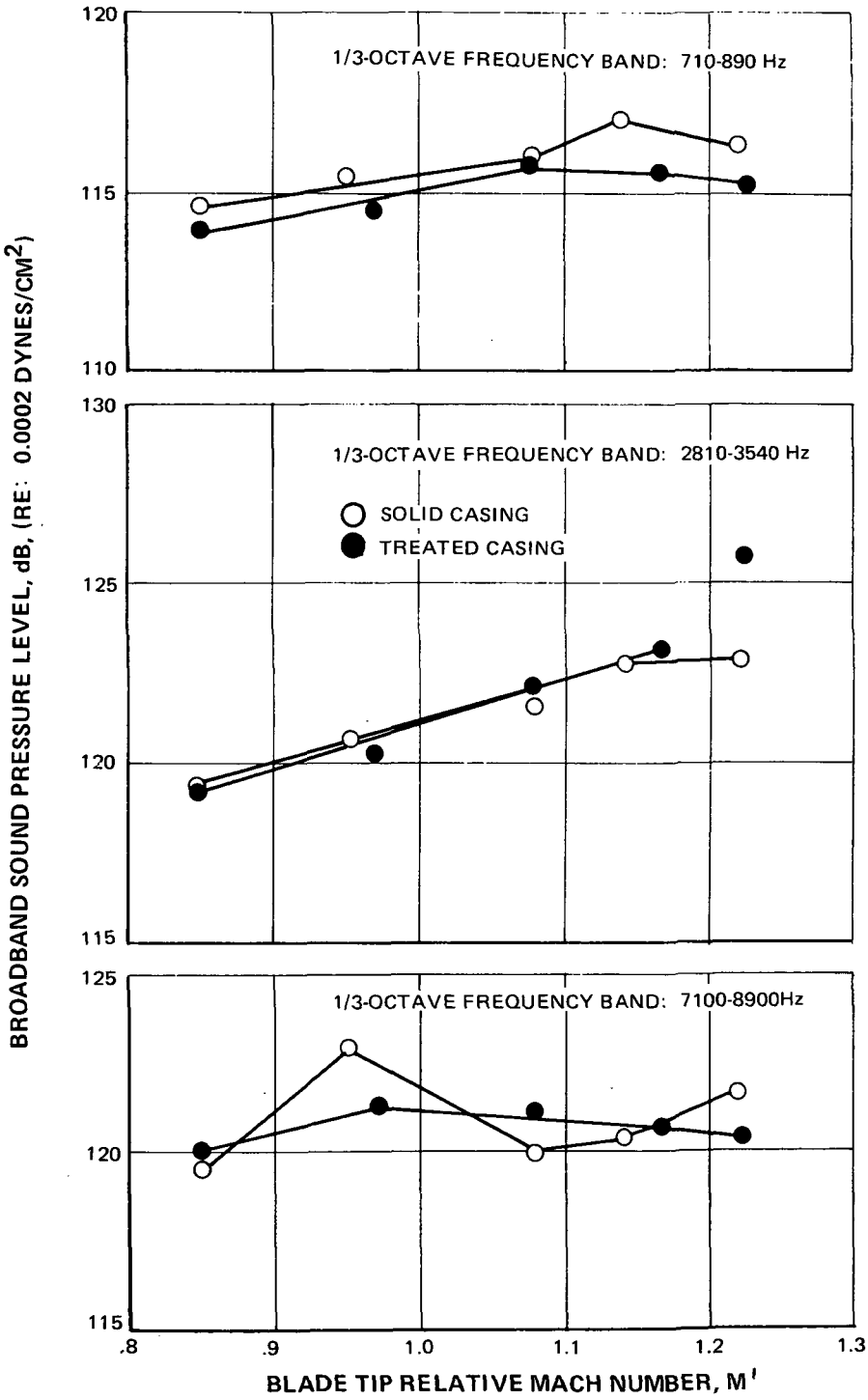


Figure 71 Inlet Broadband Sound Pressure Level in One-Third Octave Bands, With and Without Rotor Tip Casing Treatment, Nominal Stator at Part Throttle

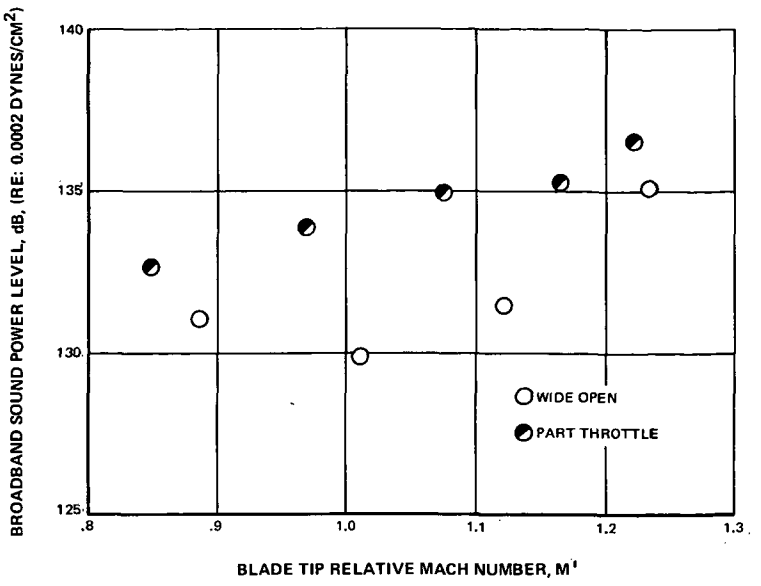


Figure 72 Total Inlet Broadband Sound Power Level For Fan With Rotor Tip Casing Treatment, Nominal Stator

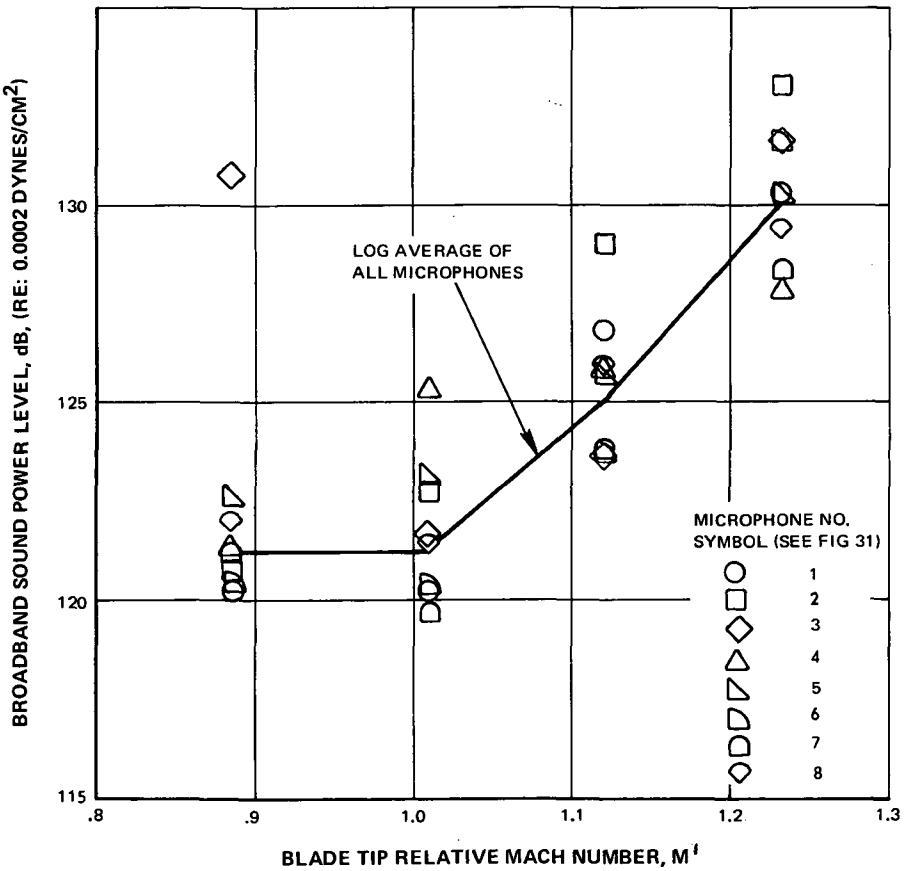


Figure 73 Time-Averaged Blade-Passing-Frequency Inlet Noise for Fan With Rotor Tip Casing Treatment, Nominal Stator at Wide Open Throttle

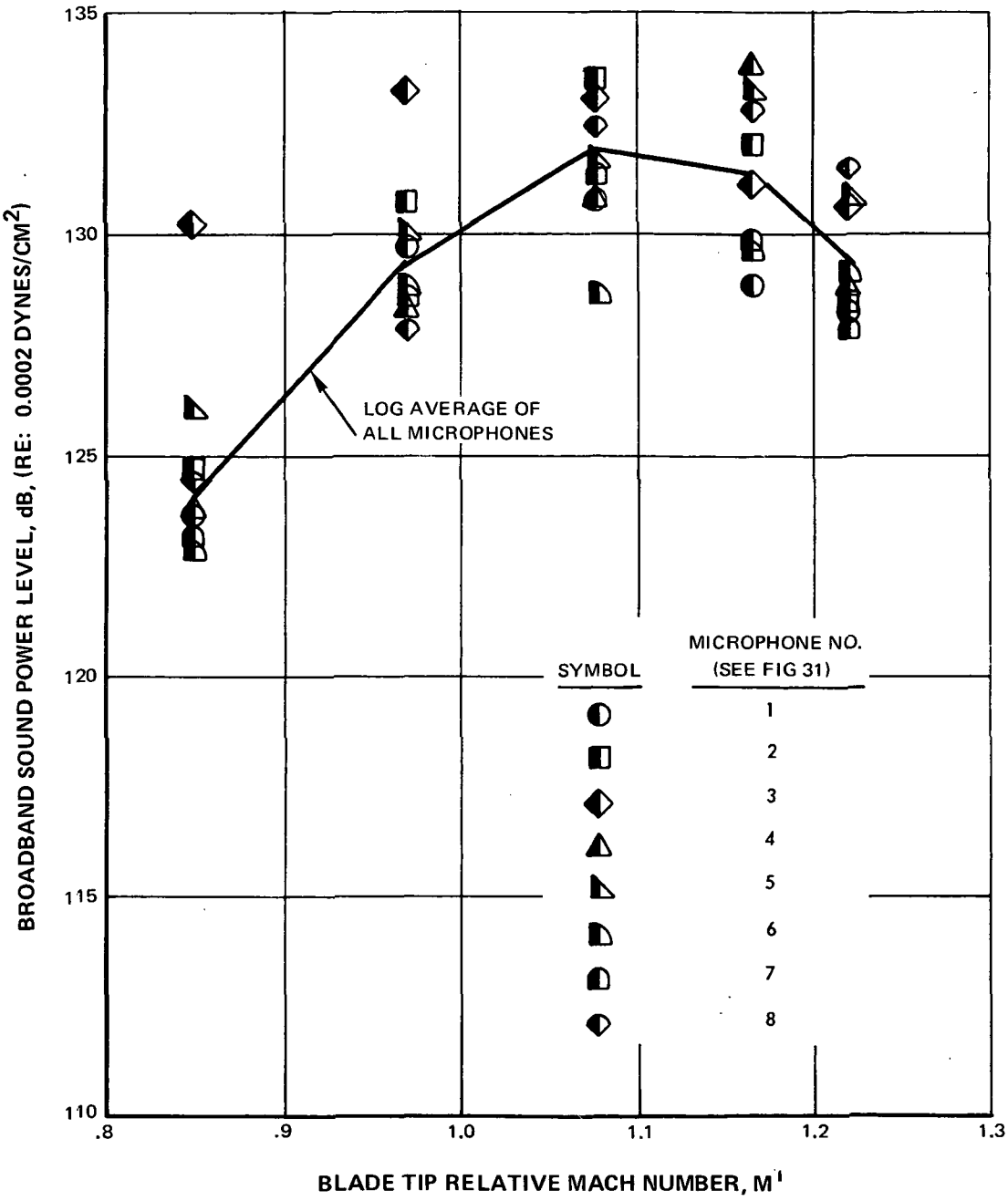


Figure 74 Time-Averaged Blade-Passing-Frequency Inlet Noise for Fan With Rotor Tip Casing Treatment, Nominal Stator at Part Throttle

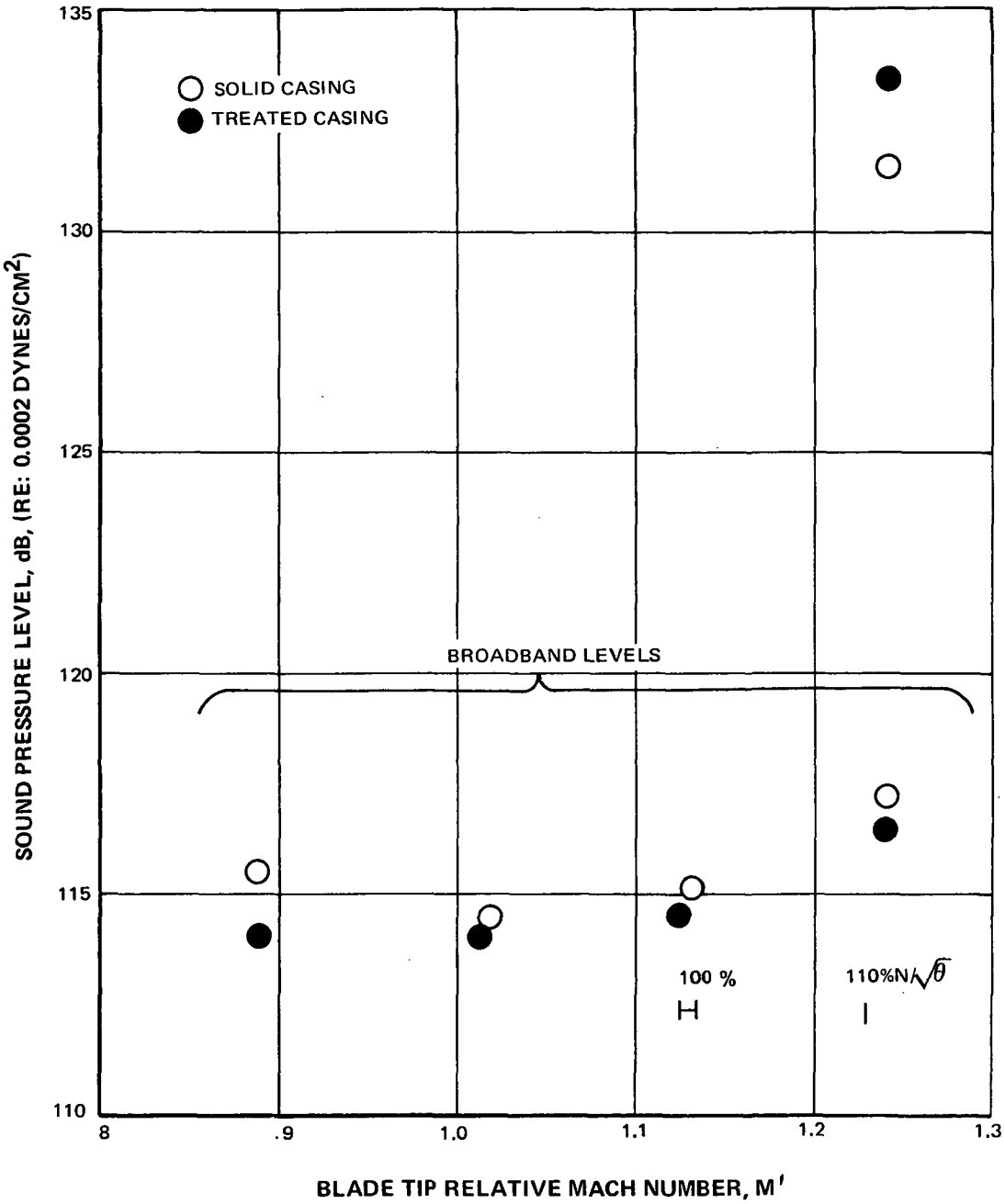


Figure 75 Supersonic Fan Inlet Noise and Integrated Broadband Sound Pressure Levels With and Without Rotor Tip Casing Treatment, Nominal Stator at Wide Open Throttle

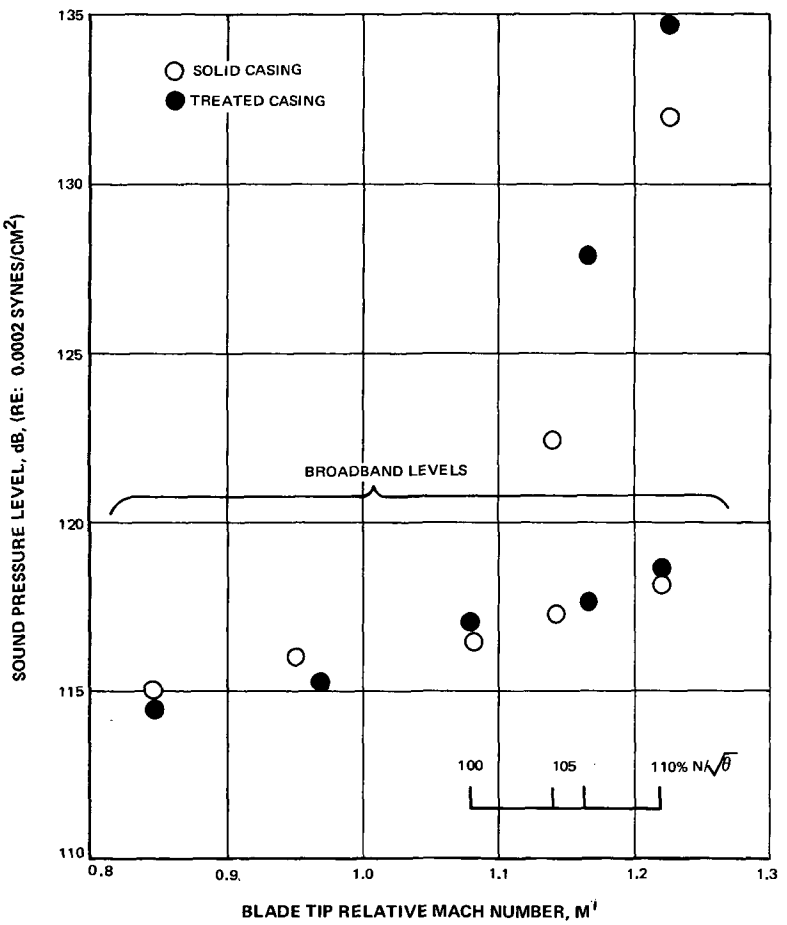


Figure 76 Supersonic Fan Inlet Noise and Integrated Broadband Sound Pressure Levels With and Without Rotor Tip Casing Treatment, Nominal Stator at Part Throttle

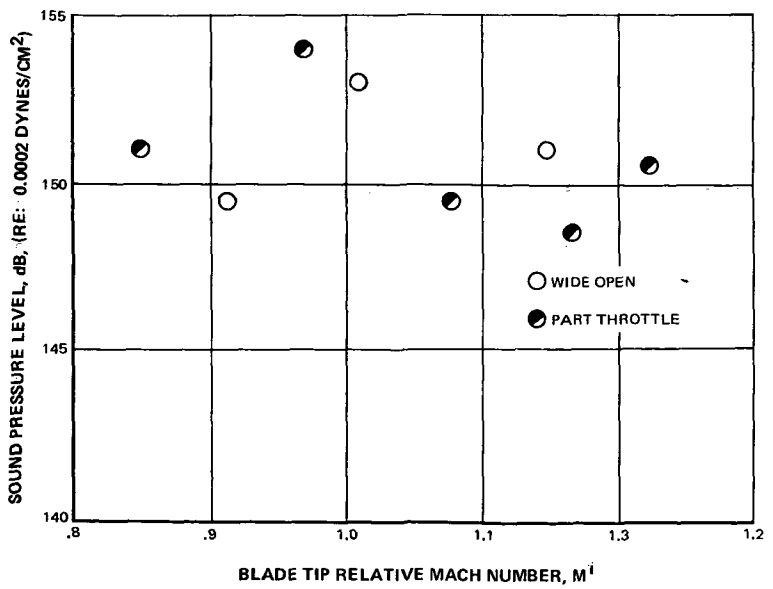


Figure 77 Time-Averaged Blade-Passing-Frequency Noise Downstream of Fan With Rotor Tip Casing Treatment, Nominal Stator

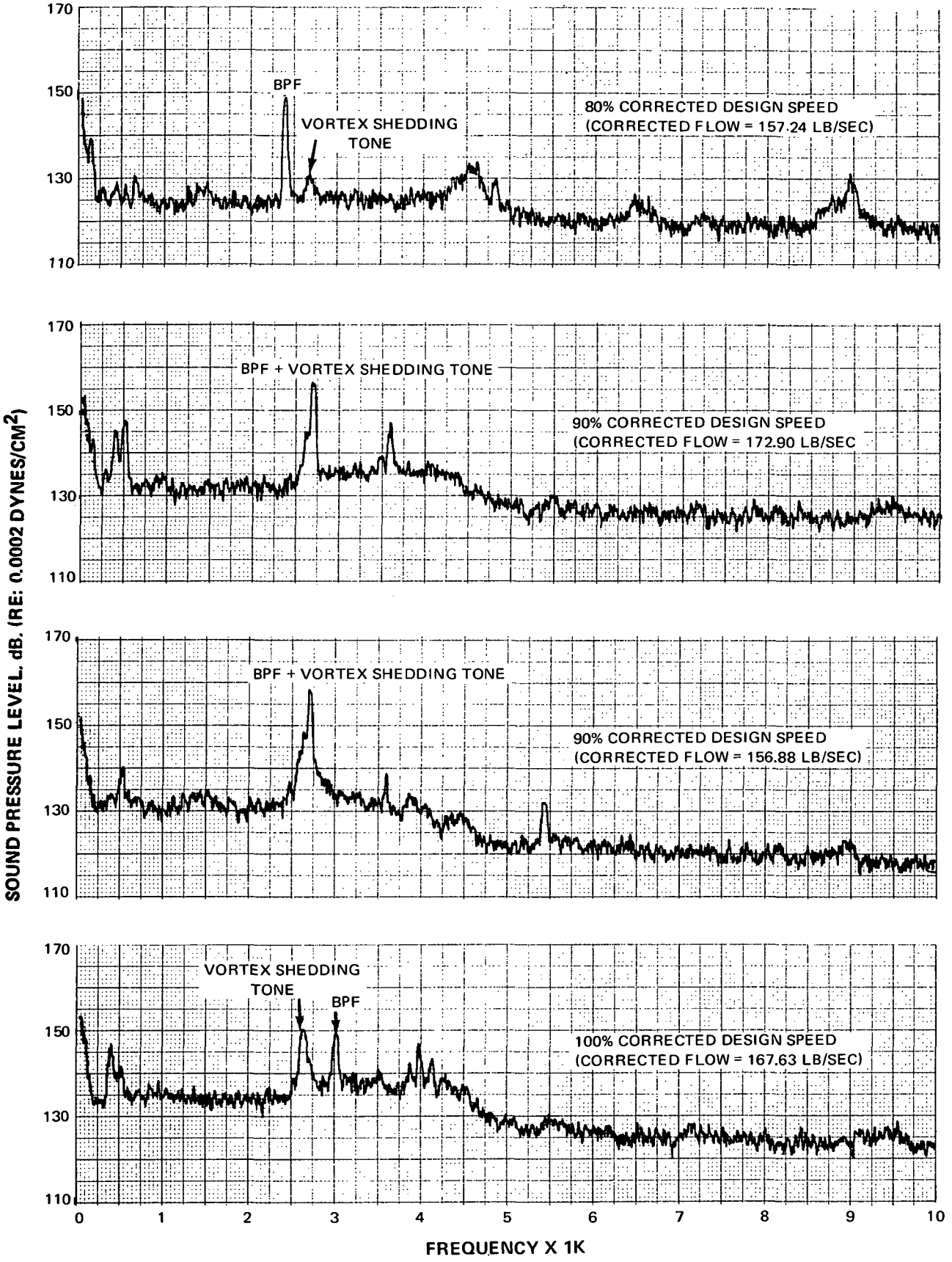


Figure 78 Sound-Pressure-Level Spectra Downstream of Fan With Rotor Tip Casing Treatment, Nominal Stator

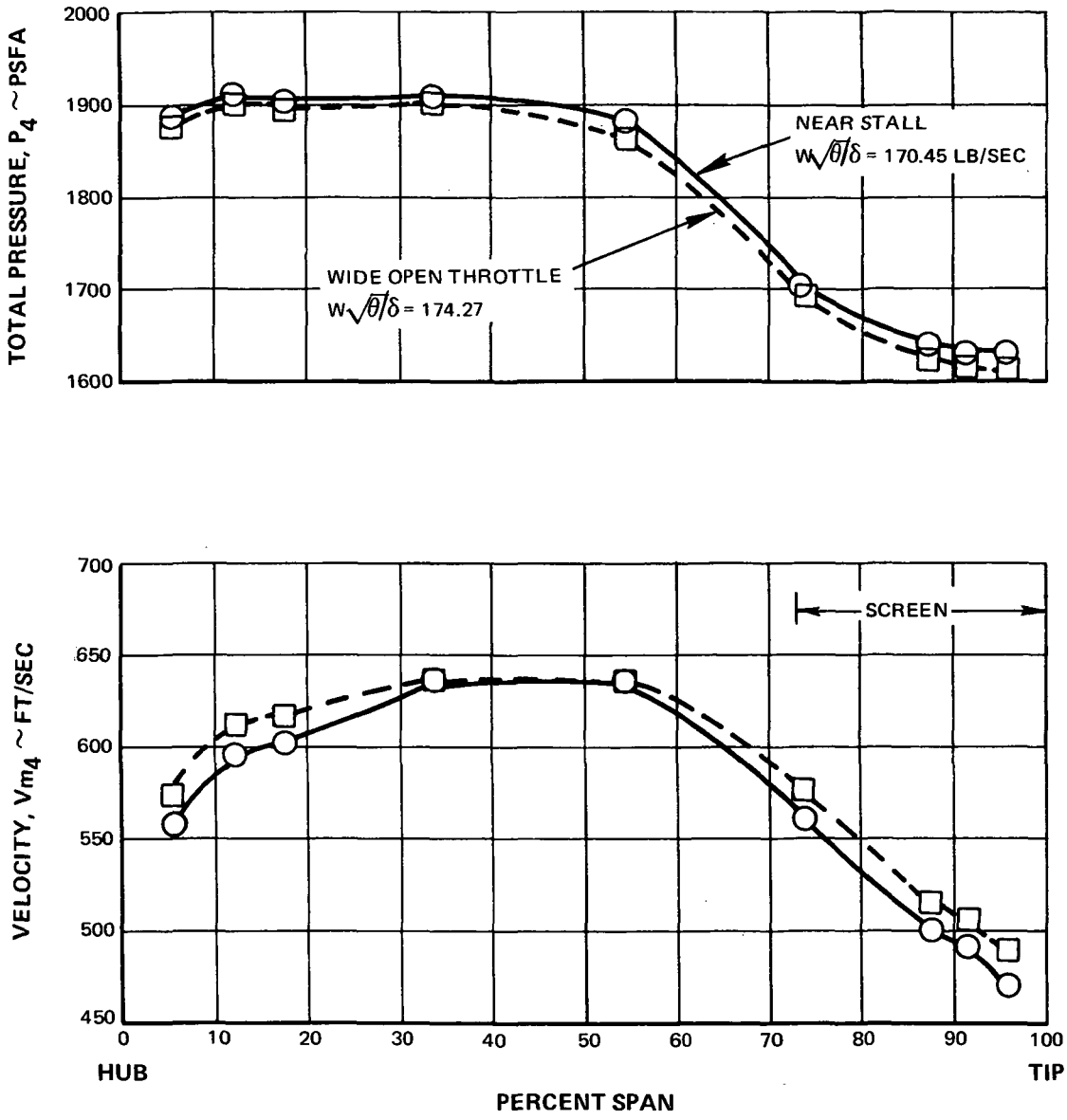


Figure 79 Tip-Radial Distortion Pattern at Rotor Inlet at 95 Percent of Design Speed

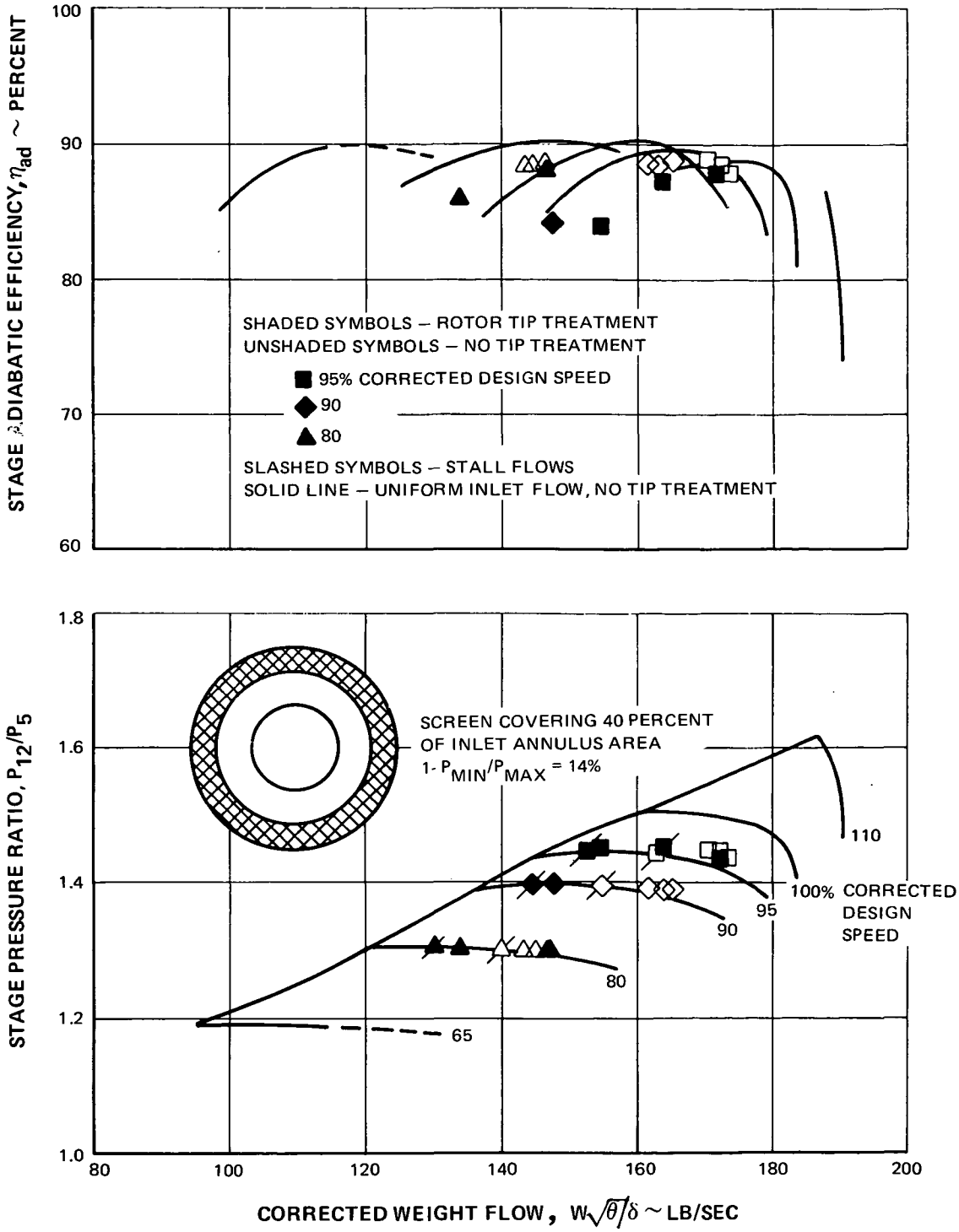


Figure 80 Overall Fan Stage Performance With Tip-Radial Distortion, Showing Effect of Skewed Slots Rotor Tip Treatment

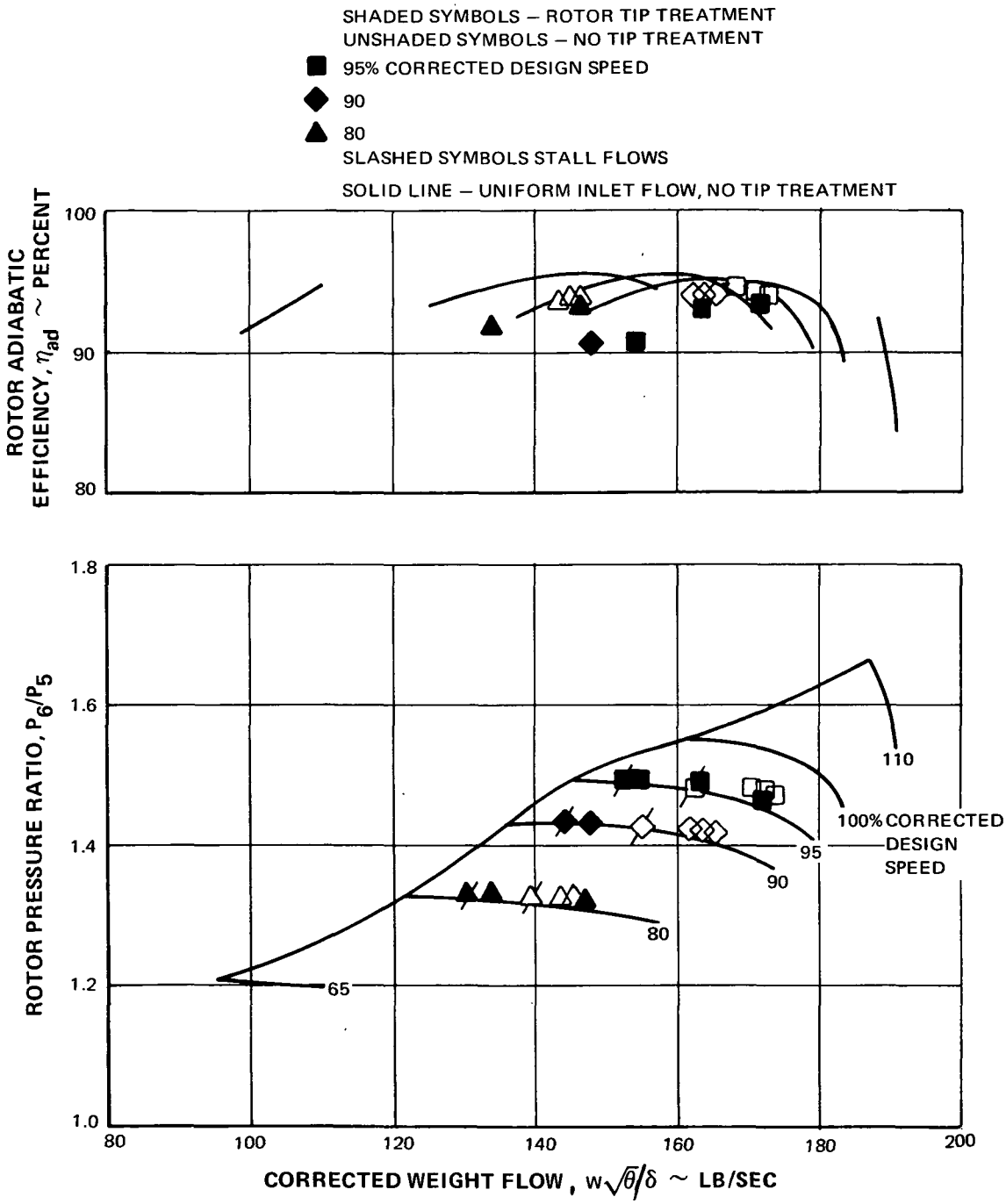


Figure 81 Overall Performance of Rotor With Tip-Radial Distortion, Showing Effect of Skewed Slots Rotor Tip Treatment

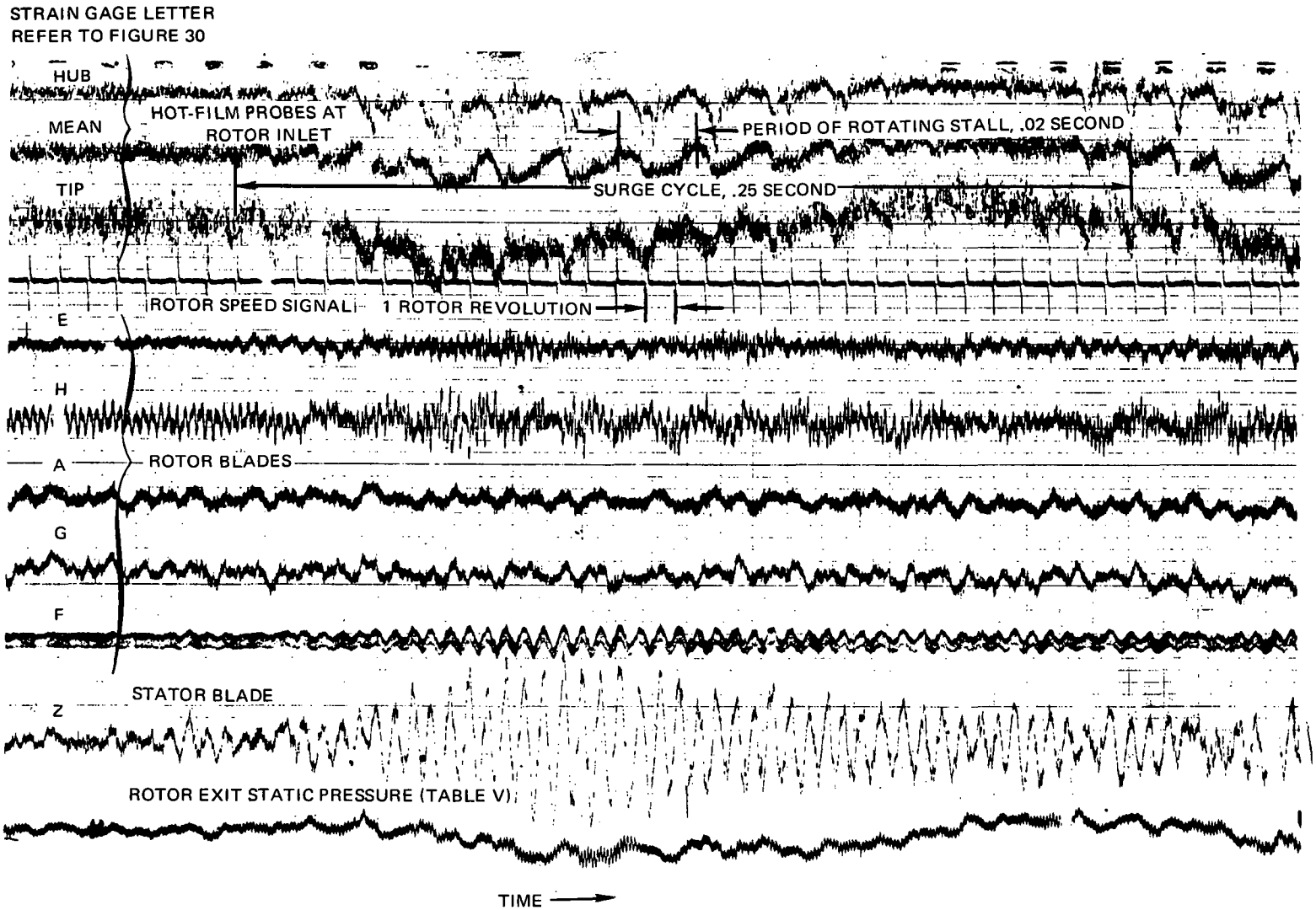


Figure 82 Oscillograph Trace of Stall With Tip-Radial Distortion With Treated Rotor Tip Casing at 95 Percent of Design Speed

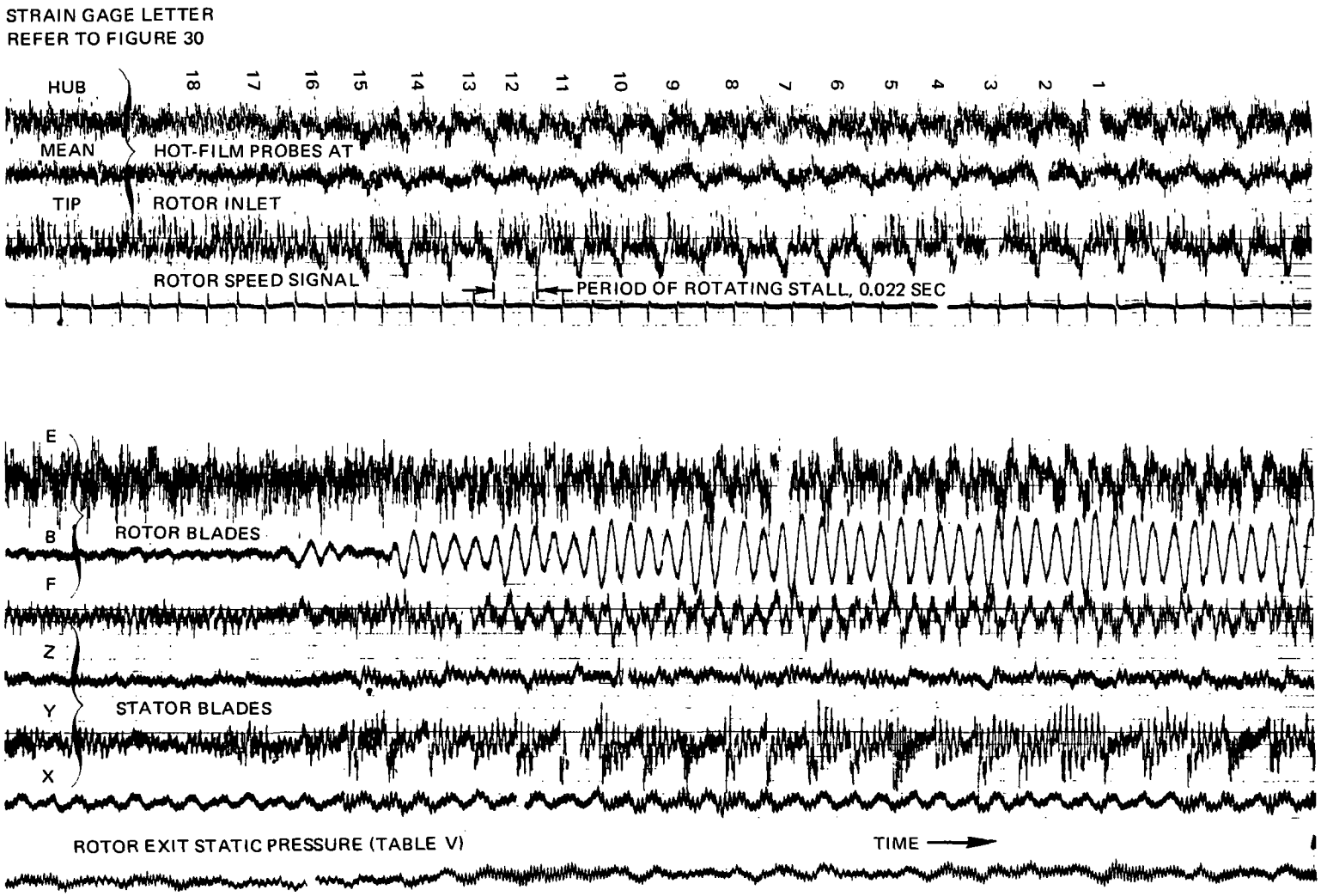


Figure 83 Oscillograph Trace of Stall With Tip Radial Distortion With Solid Casing at 95 Percent of Design Speed

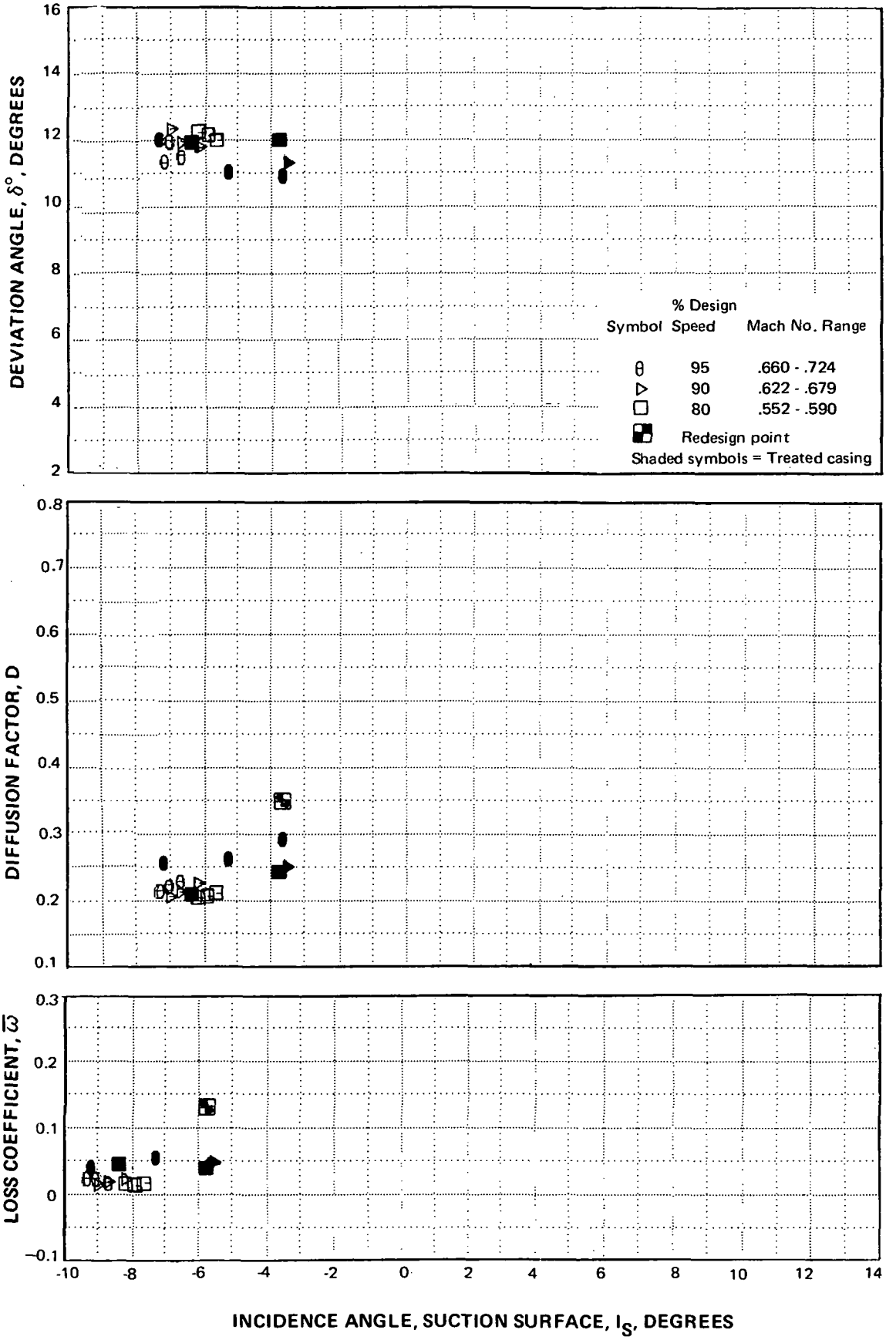


Figure 84a Slotted Rotor Blade Element Performance With Tip Radial Distortion Showing the Effect of Skewed Slot Tip Treatment at 10 Percent Span From Hub

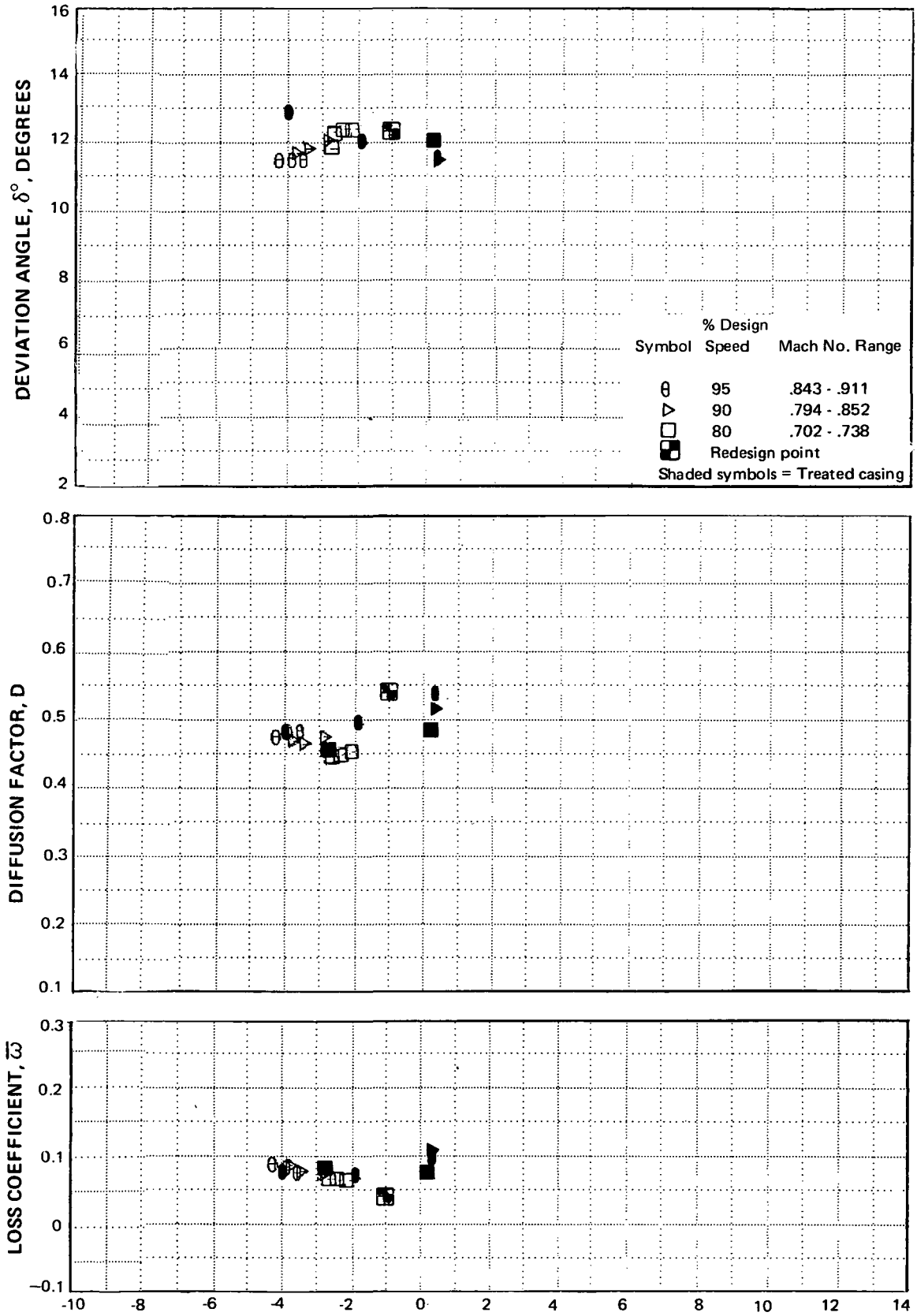


Figure 84b Slotted Rotor Blade Element Performance With Tip Radial Distortion Showing the Effect of Skewed Slot Tip Treatment at 50 Percent Span From Hub

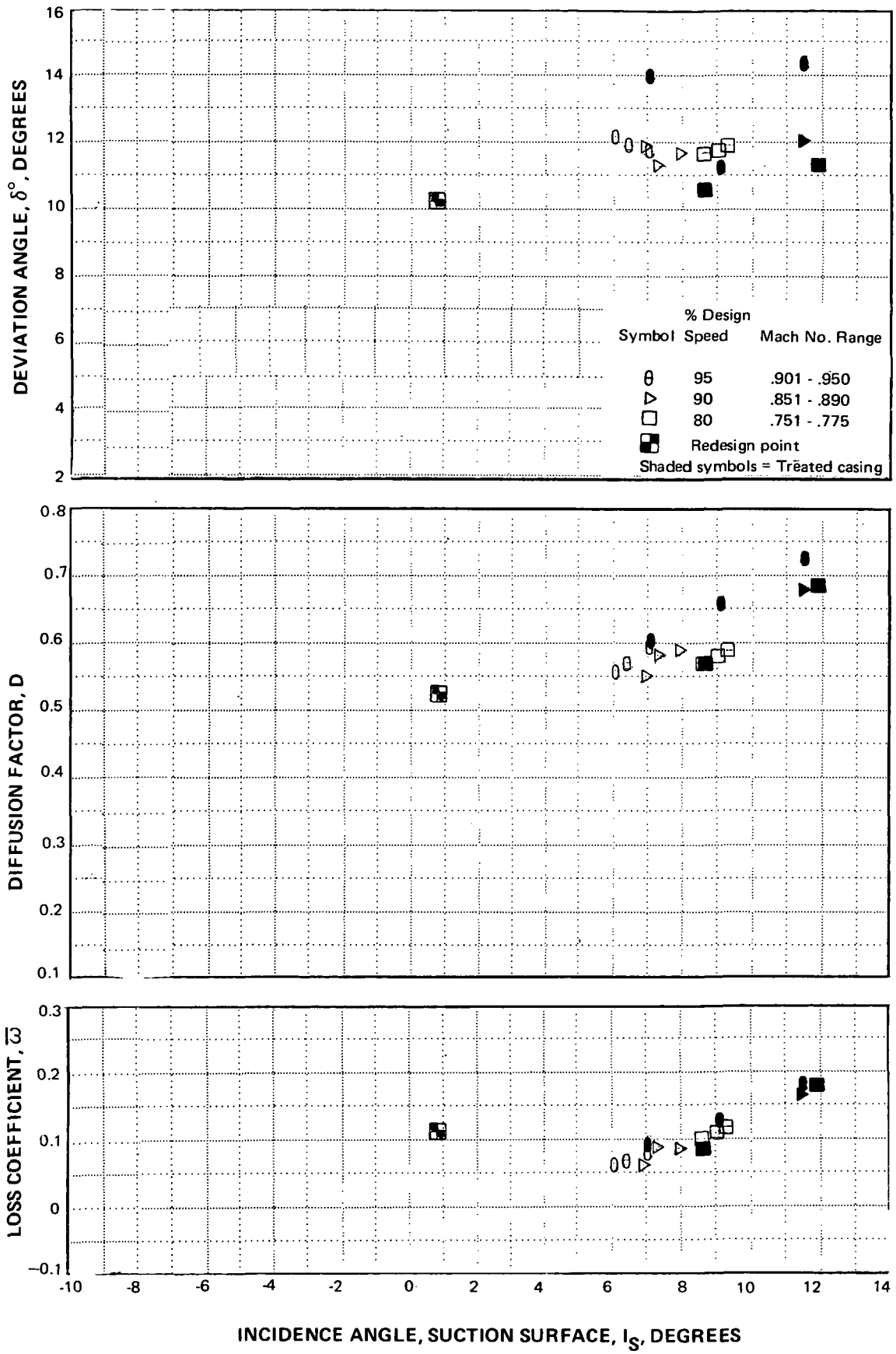


Figure 84c Slotted Rotor Blade Element Performance With Tip Radial Distortion Showing the Effect of Skewed Slot Tip Treatment at 90 Percent Span From Hub

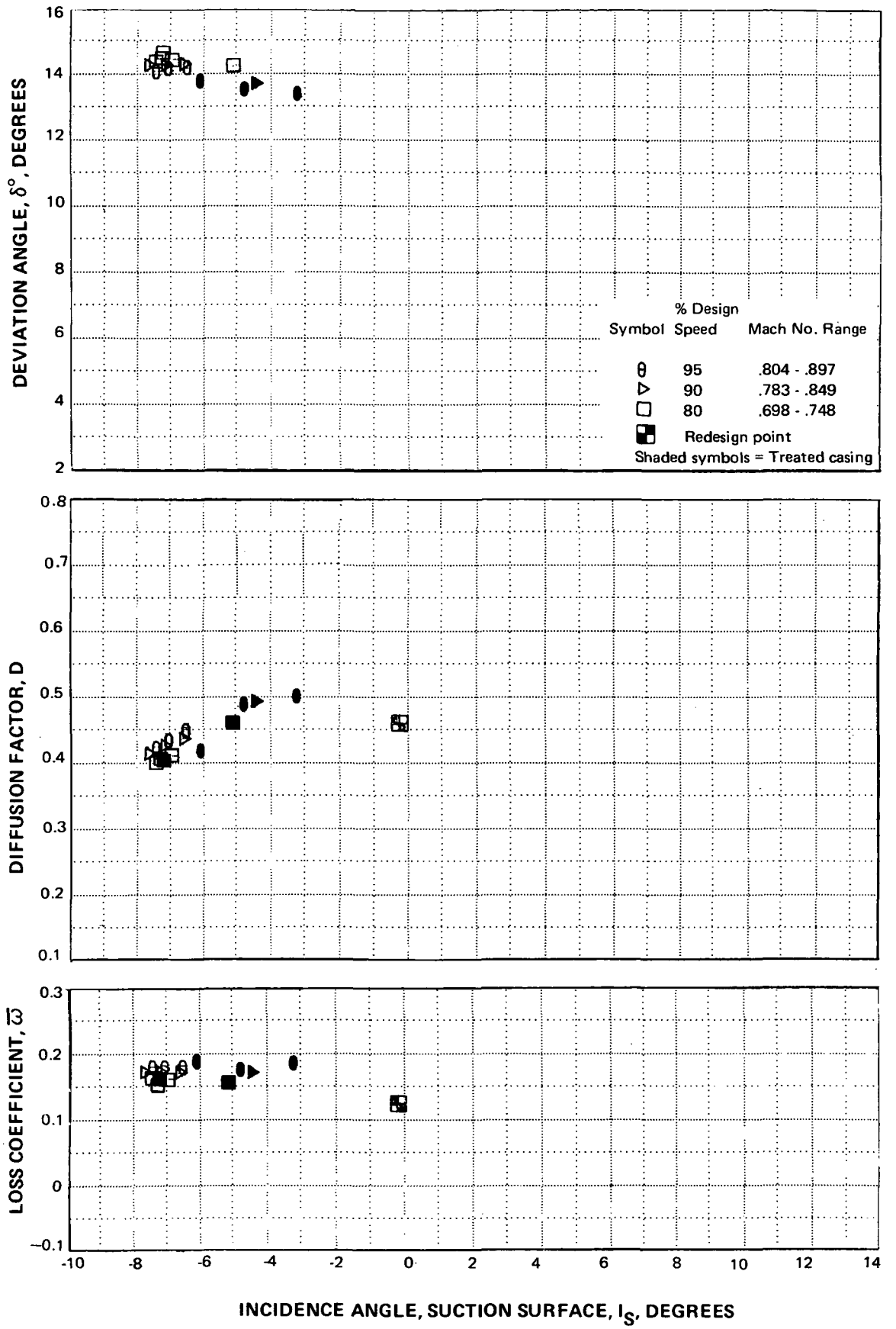


Figure 85a Stator Blade Element Performance With Tip Radial Distortion, Including the Effect of Rotor Tip Casing Treatment, at 10 Percent Span From Hub

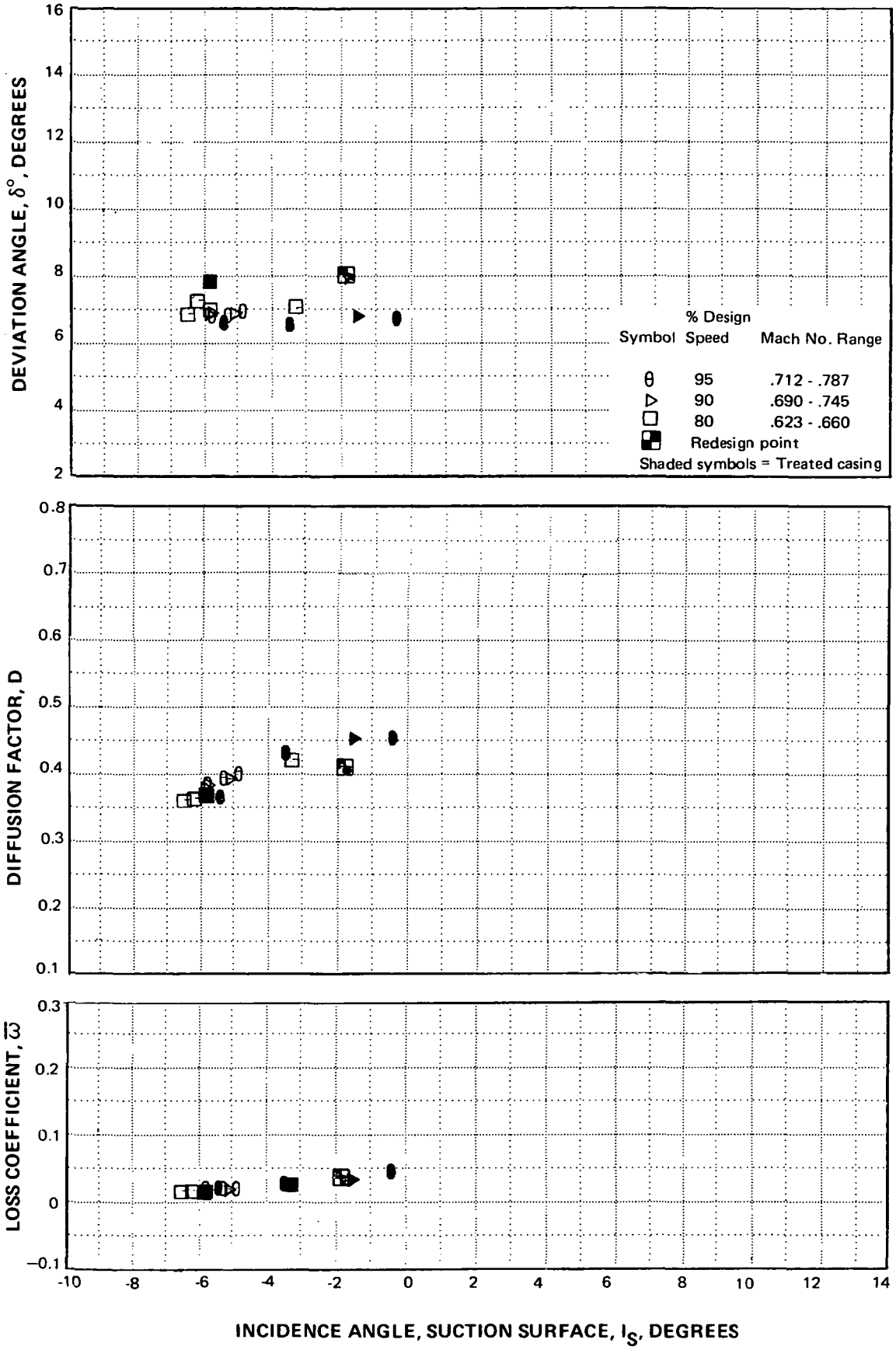


Figure 85b Stator Blade Element Performance With Tip Radial Distortion, Including the Effect of Rotor Tip Casing Treatment, at 50 Percent Span From Hub

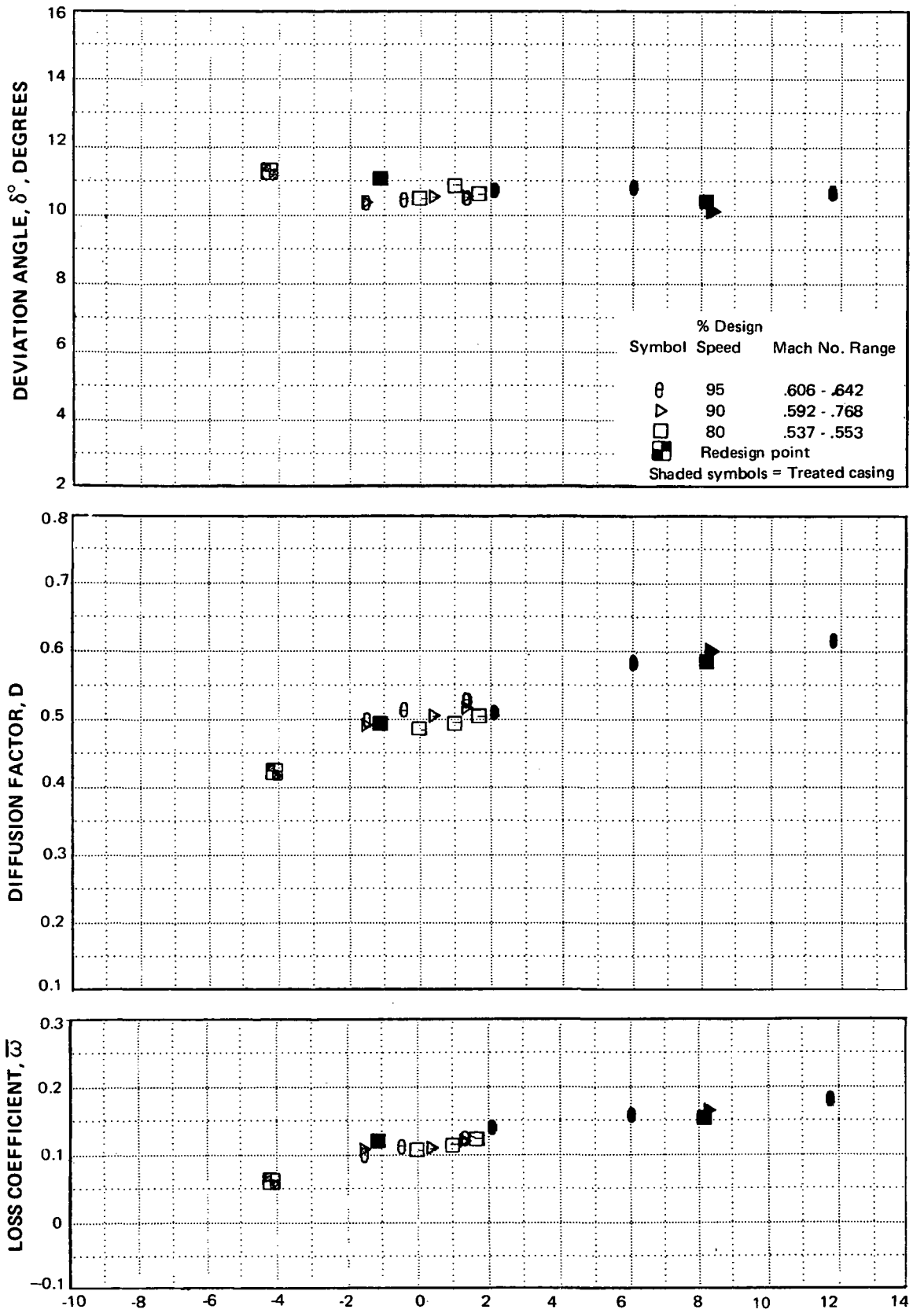


Figure 85c Stator Blade Element Performance With Tip Radial Distortion, Including the Effect of Rotor Tip Casing Treatment, at 90 Percent Span From Hub

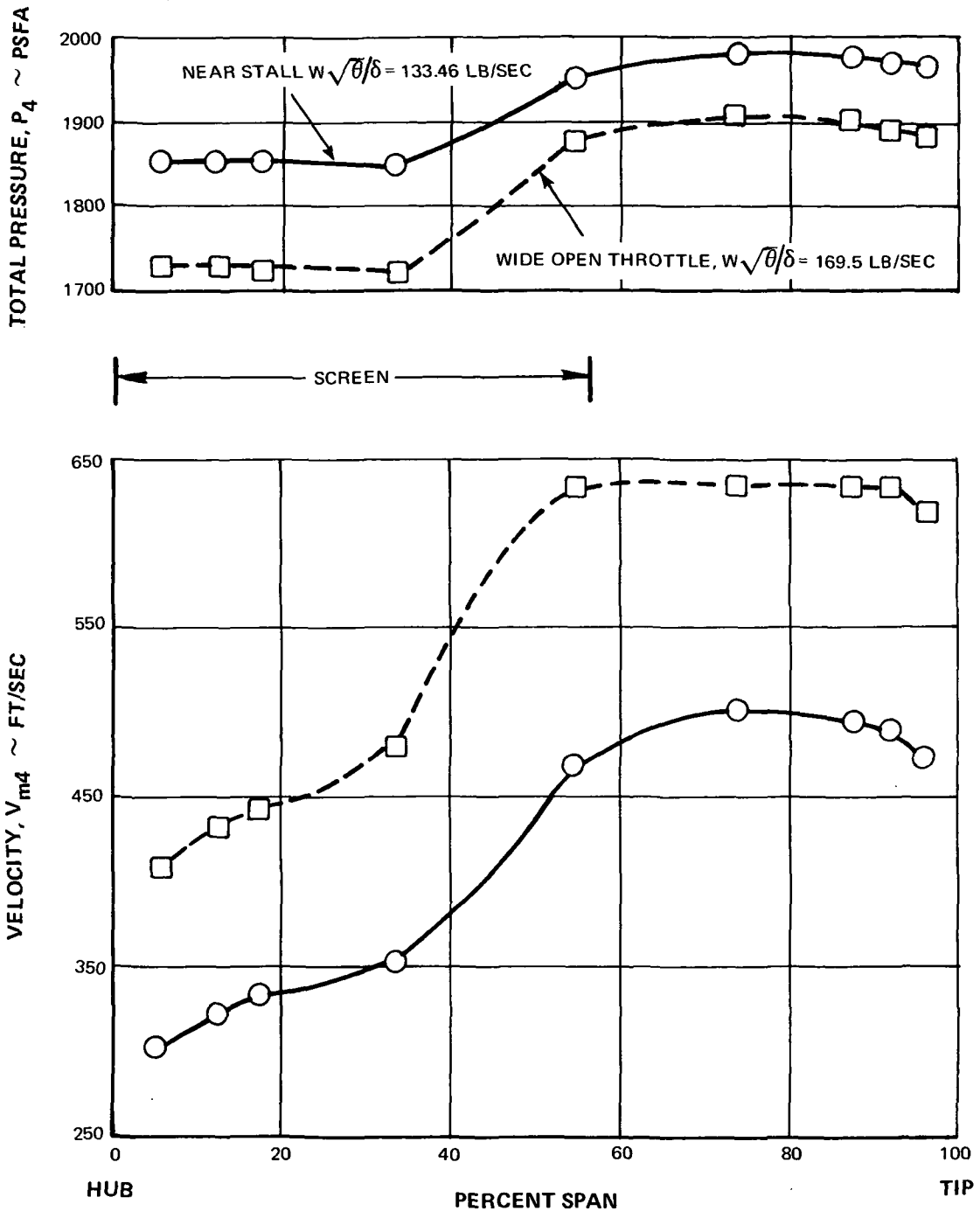


Figure 86 Hub-Radial Distortion Pattern at Rotor Inlet at 95 Percent of Design Speed

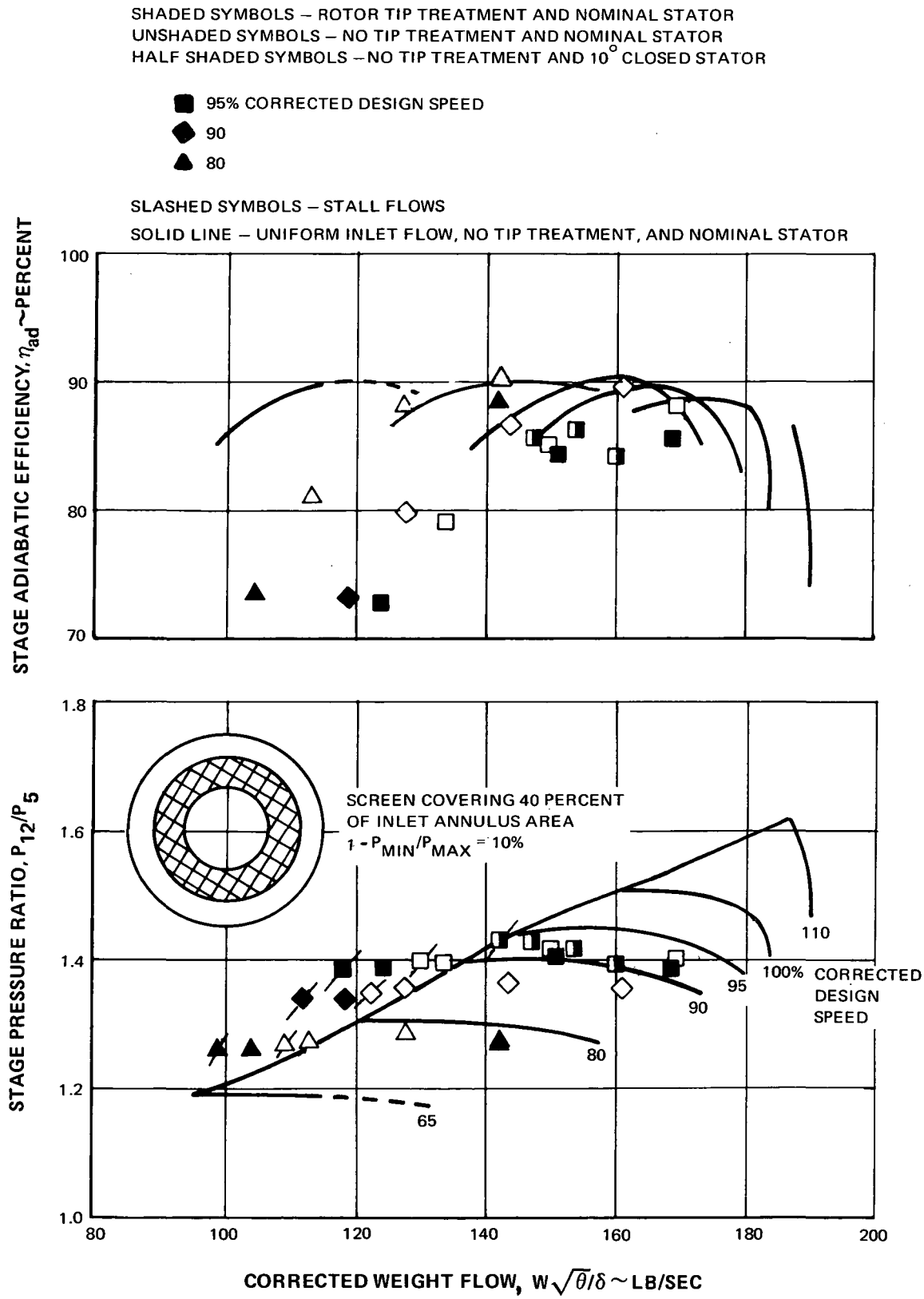


Figure 87 Overall Fan Stage Performance With Hub-Radial Distortion, Showing Effect of Skewed Slots Rotor Tip Treatment and of Ten-Degree Closed Stator Setting

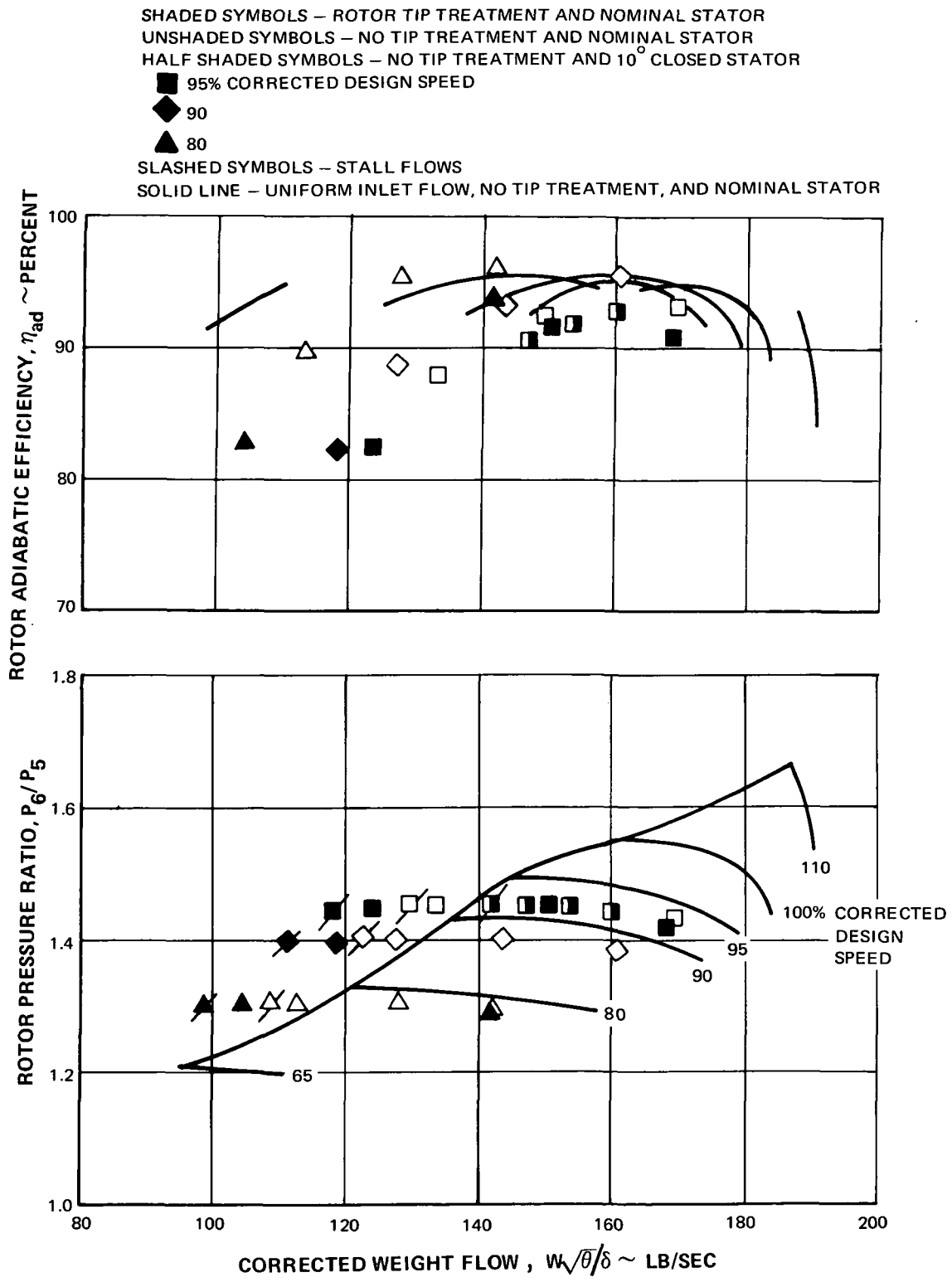


Figure 88 Overall Performance of Rotor With Hub-Radial Distortion, Showing Effect of Skewed Slots Rotor Tip Treatment and of Ten-Degree Closed Stator Setting

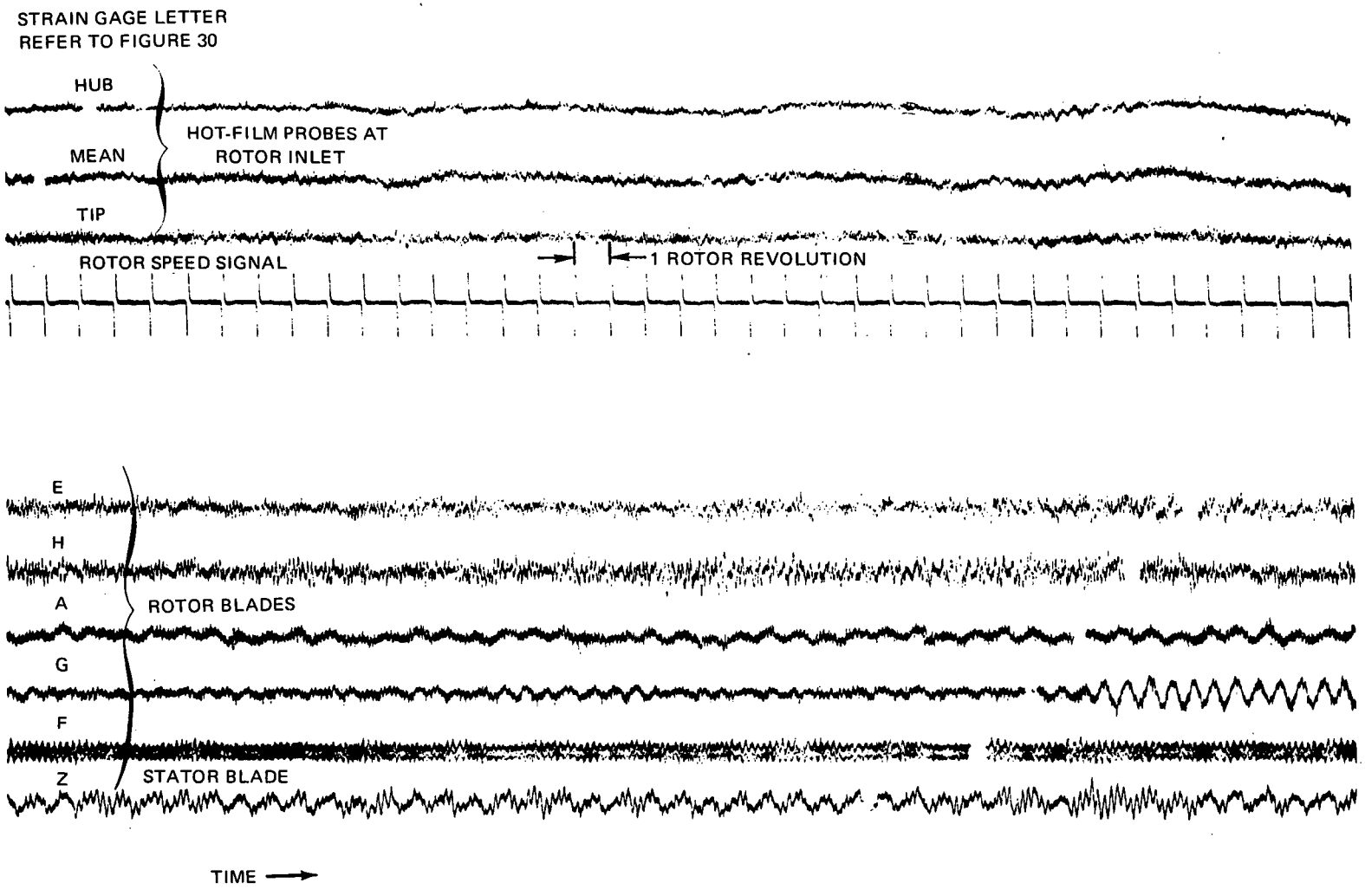


Figure 89a Oscillograph Trace of Stall With Hub-Radial Distortion, 80 Percent of Design Speed and Treated Rotor Tip Casing

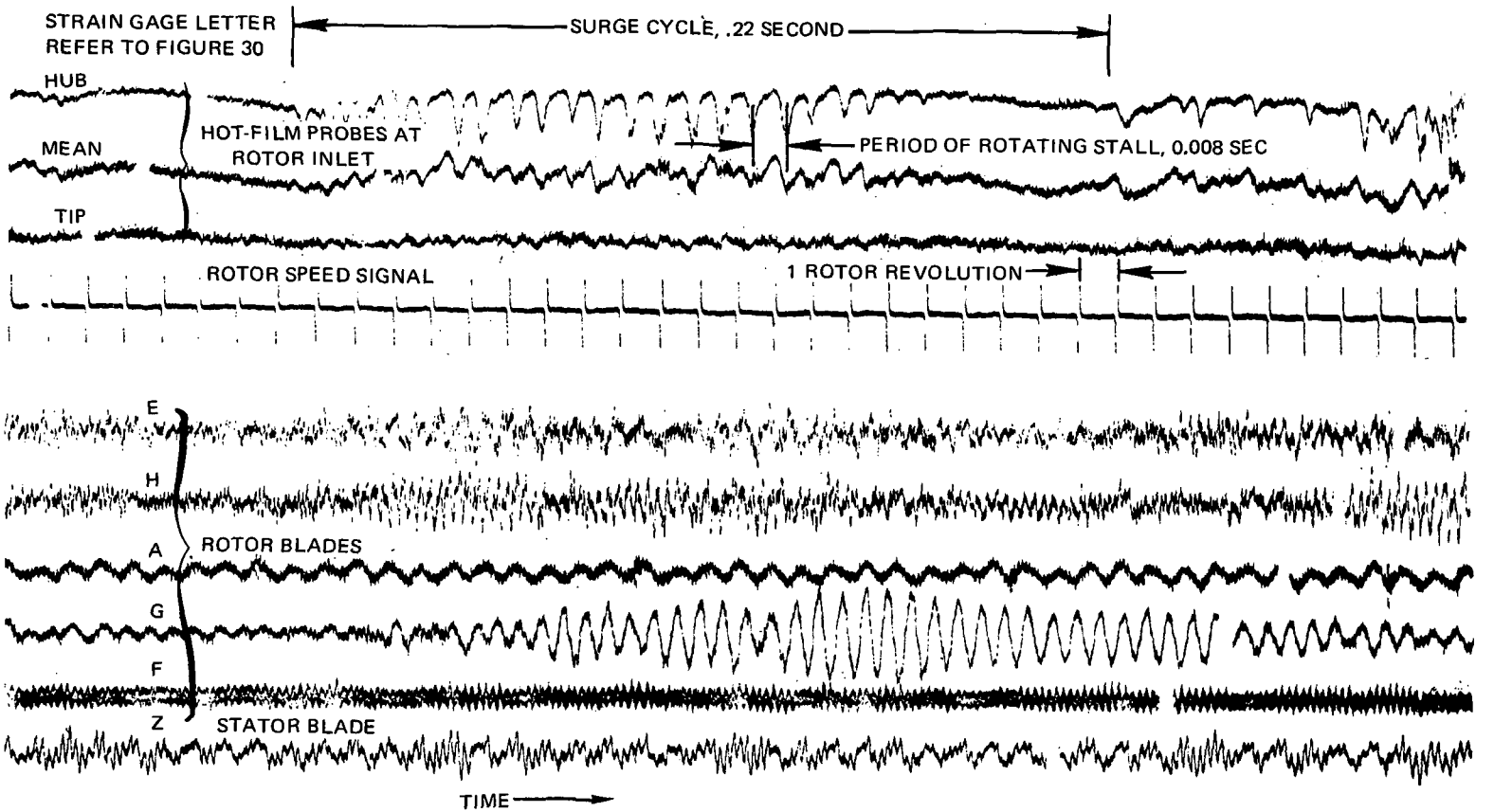


Figure 89b (Continued) Oscillograph Trace of Stall With Hub-Radial Distortion, 80 Percent of Design Speed and Treated Rotor Tip Casing

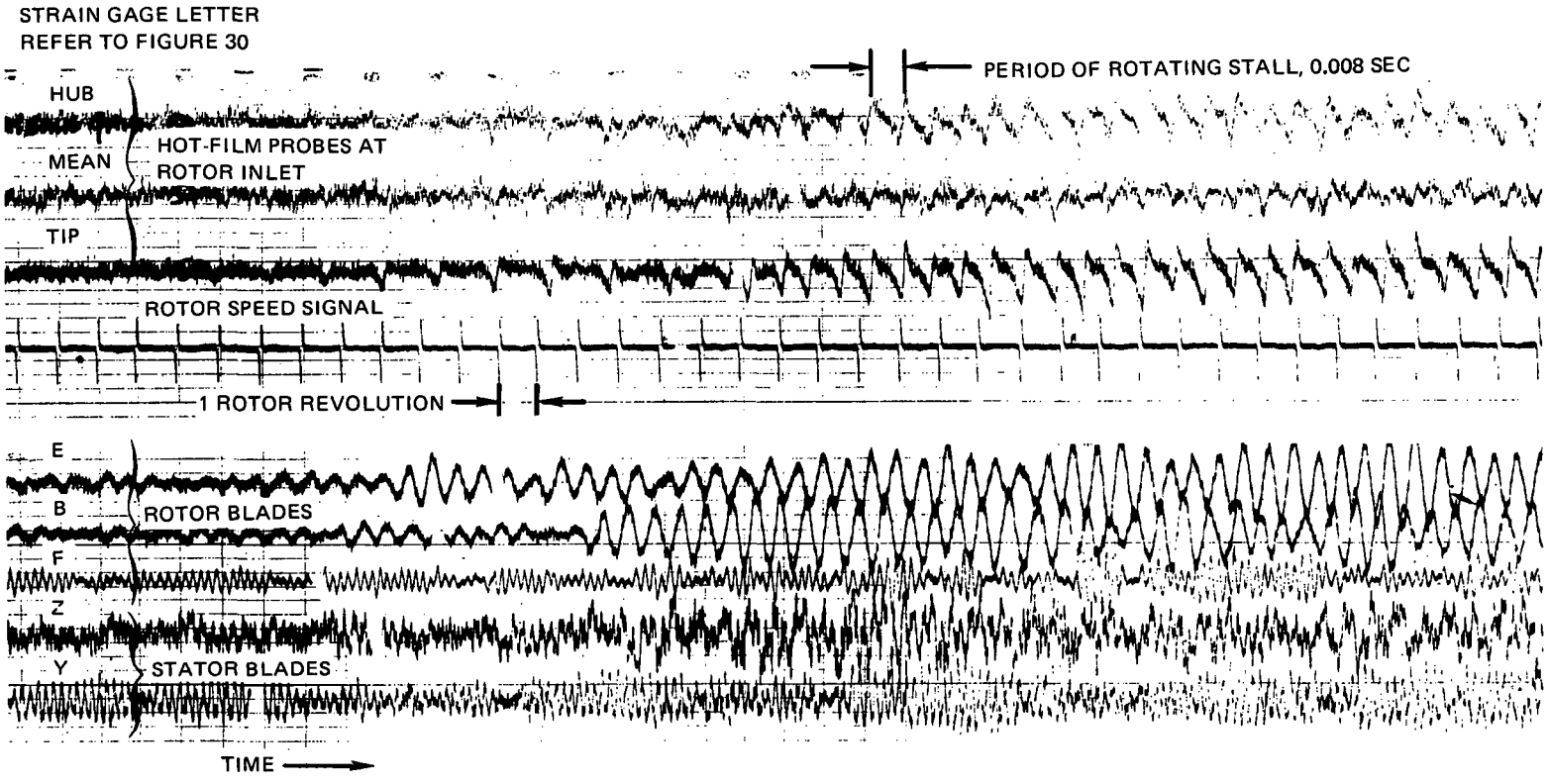


Figure 90a Oscillograph Trace of Stall With Hub Radial Distortion, 80 Percent of Design Speed and Solid Casing

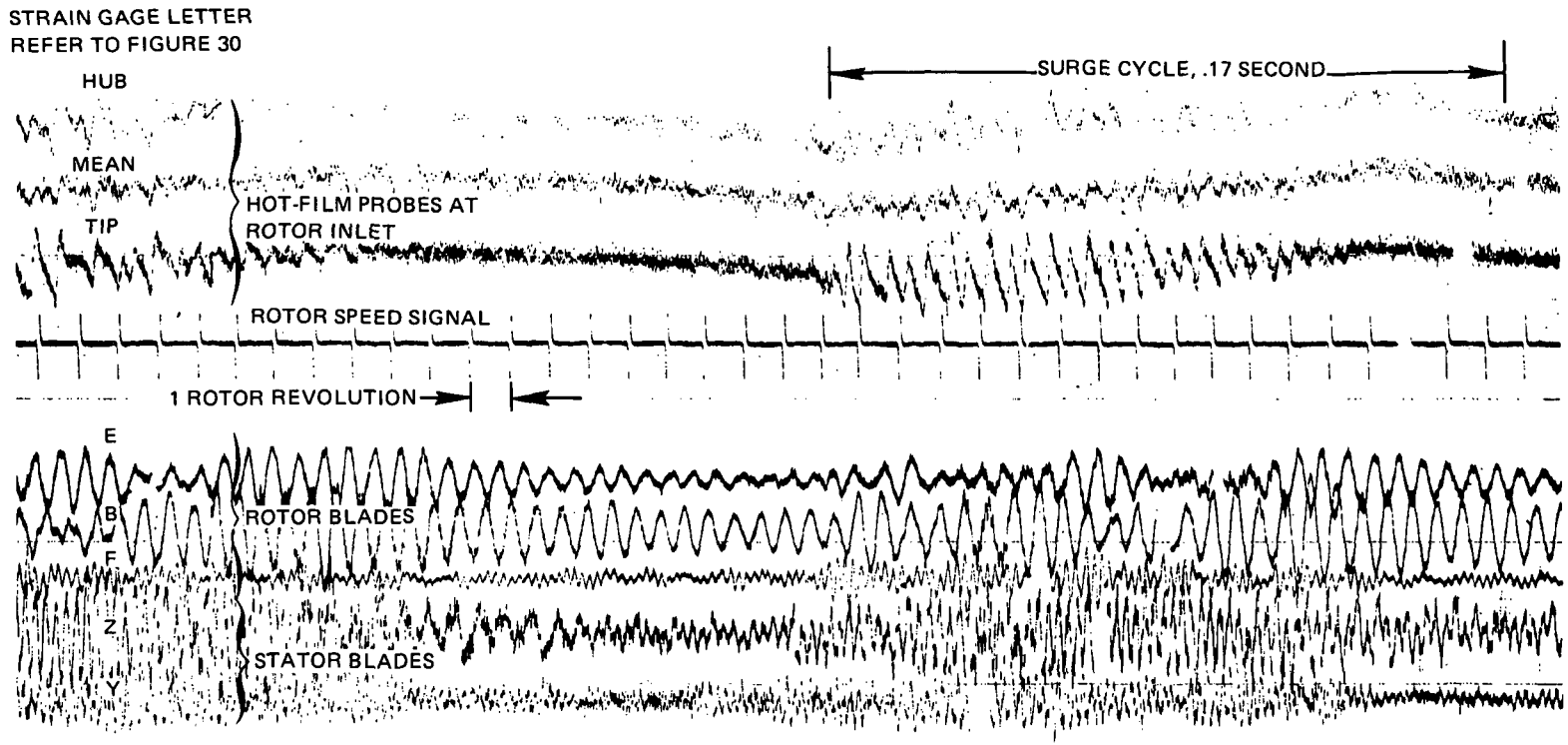


Figure 90b (Continued) Oscillograph Trace of Stall With Hub-Radial Distortion, 80 Percent of Design Speed and Solid Casing

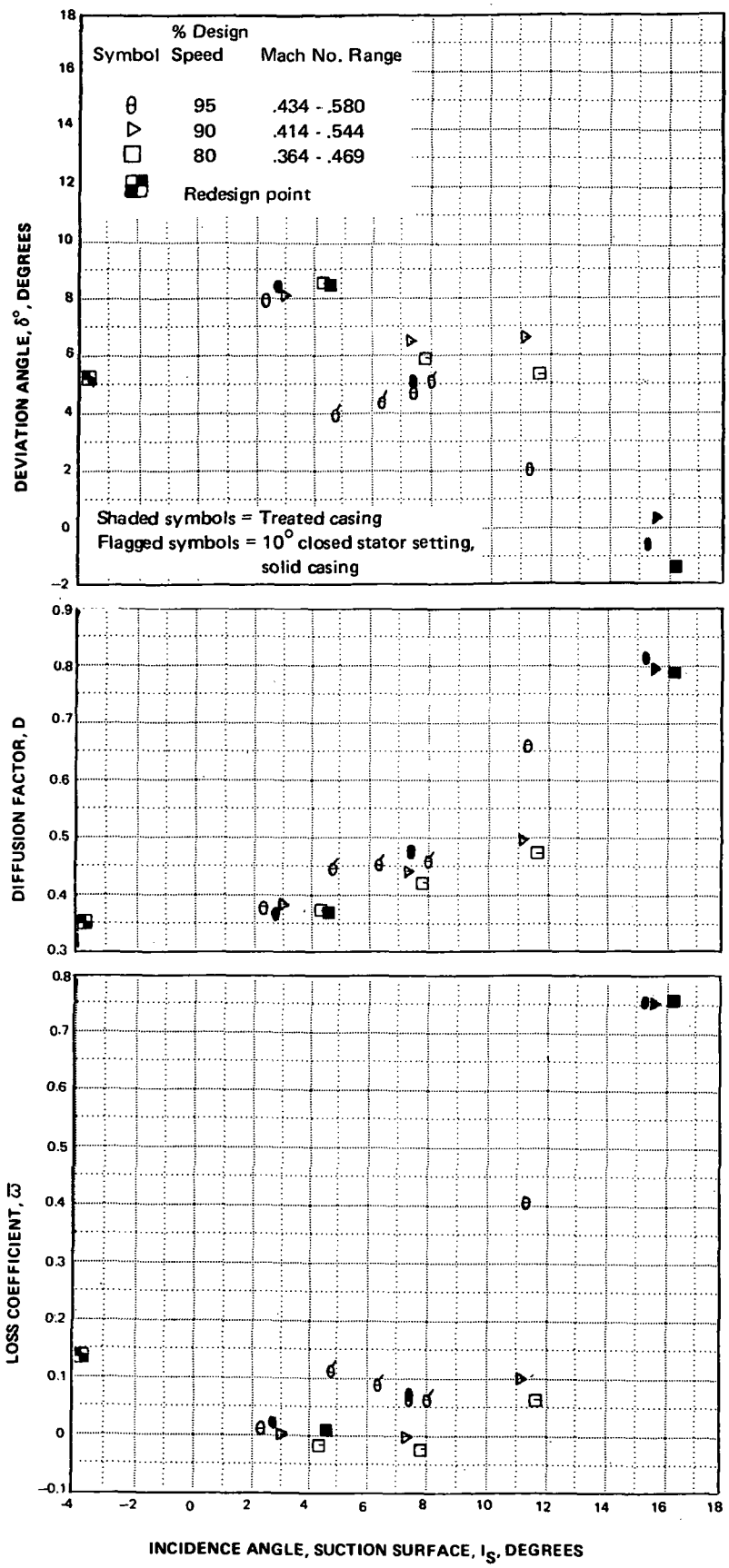


Figure 91a Slotted Rotor Blade Element Performance With Hub Radial Distortion, Including Data With 10 Degree Closed Stator Setting, Showing the Effect of Rotor Tip Casing Treatment at 10 Percent Span From Hub

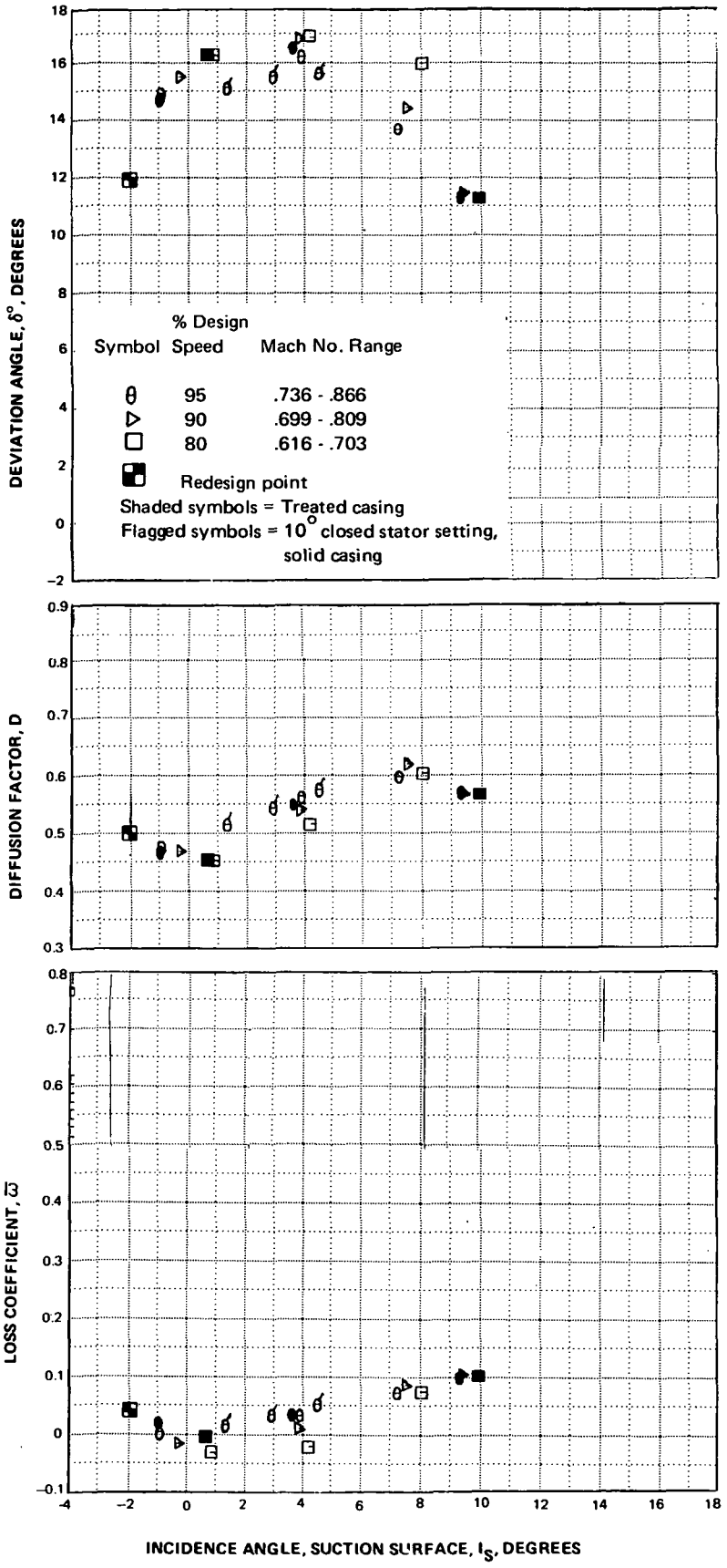


Figure 91b Slotted Rotor Blade Element Performance With Hub Radial Distortion, Including Data With 10 Degree Closed Stator Setting, Showing the Effect of Rotor Tip Casing Treatment at 50 Percent Span From Hub

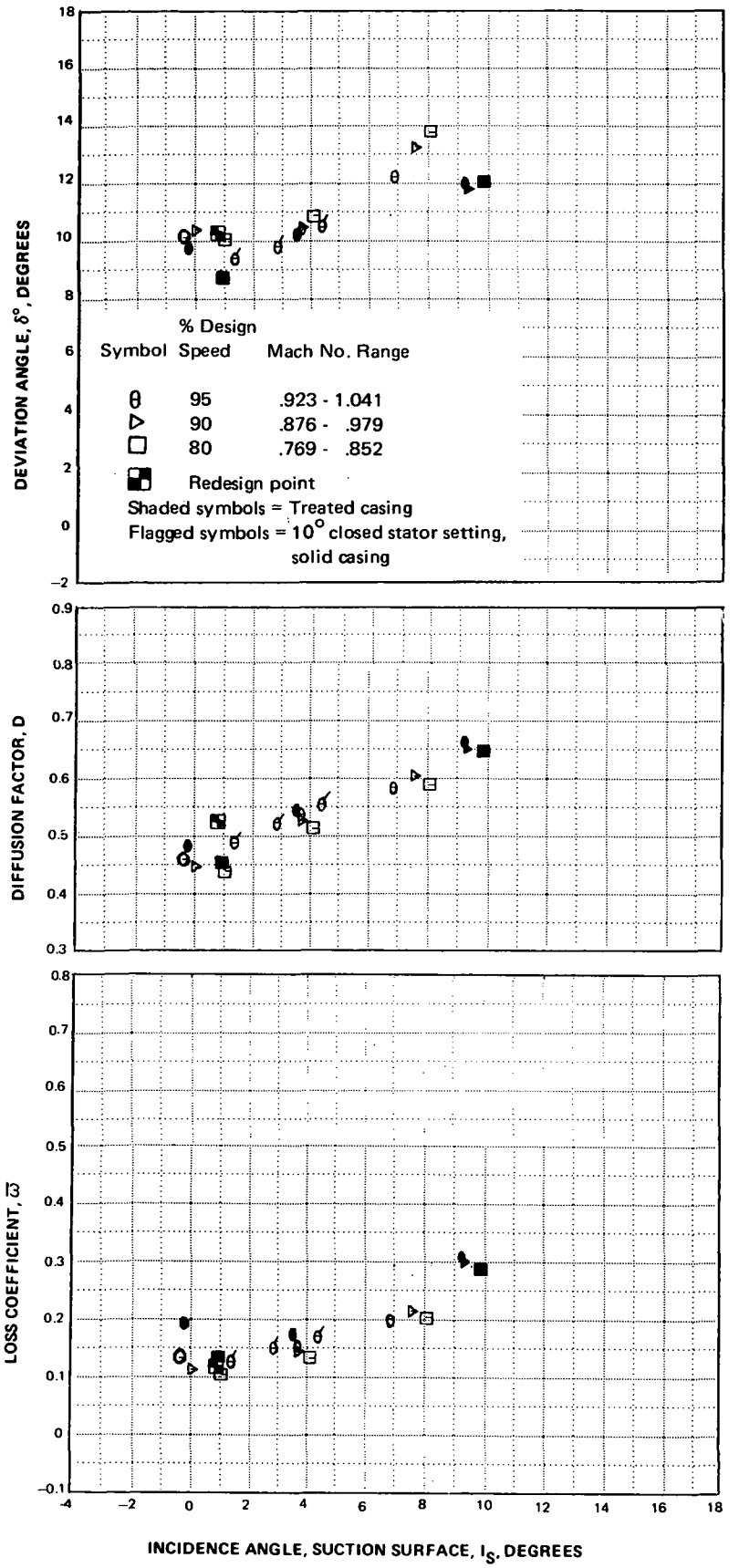


Figure 91c Slotted Rotor Blade Element Performance With Hub Radial Distortion, Including Data With 10 Degree Closed Stator Setting, Showing the Effect of Rotor Tip Casing Treatment at 90 Percent Span From Hub

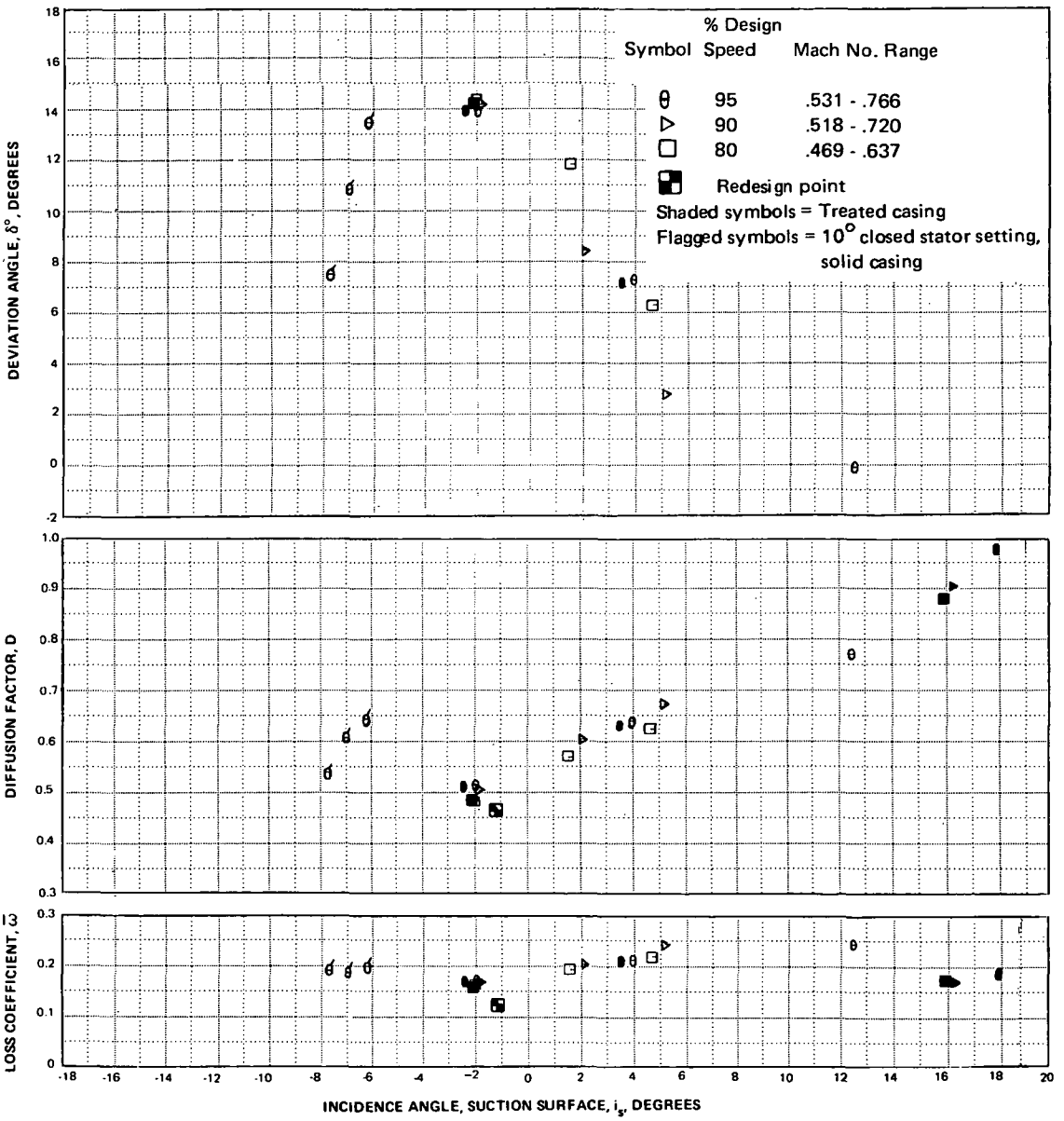


Figure 92a Stator Blade Element Performance With Hub Radial Distortion Showing the Effects of 10 Degree Closed Stator Setting and Rotor Tip Casing Treatment at 10 Percent Span From Hub

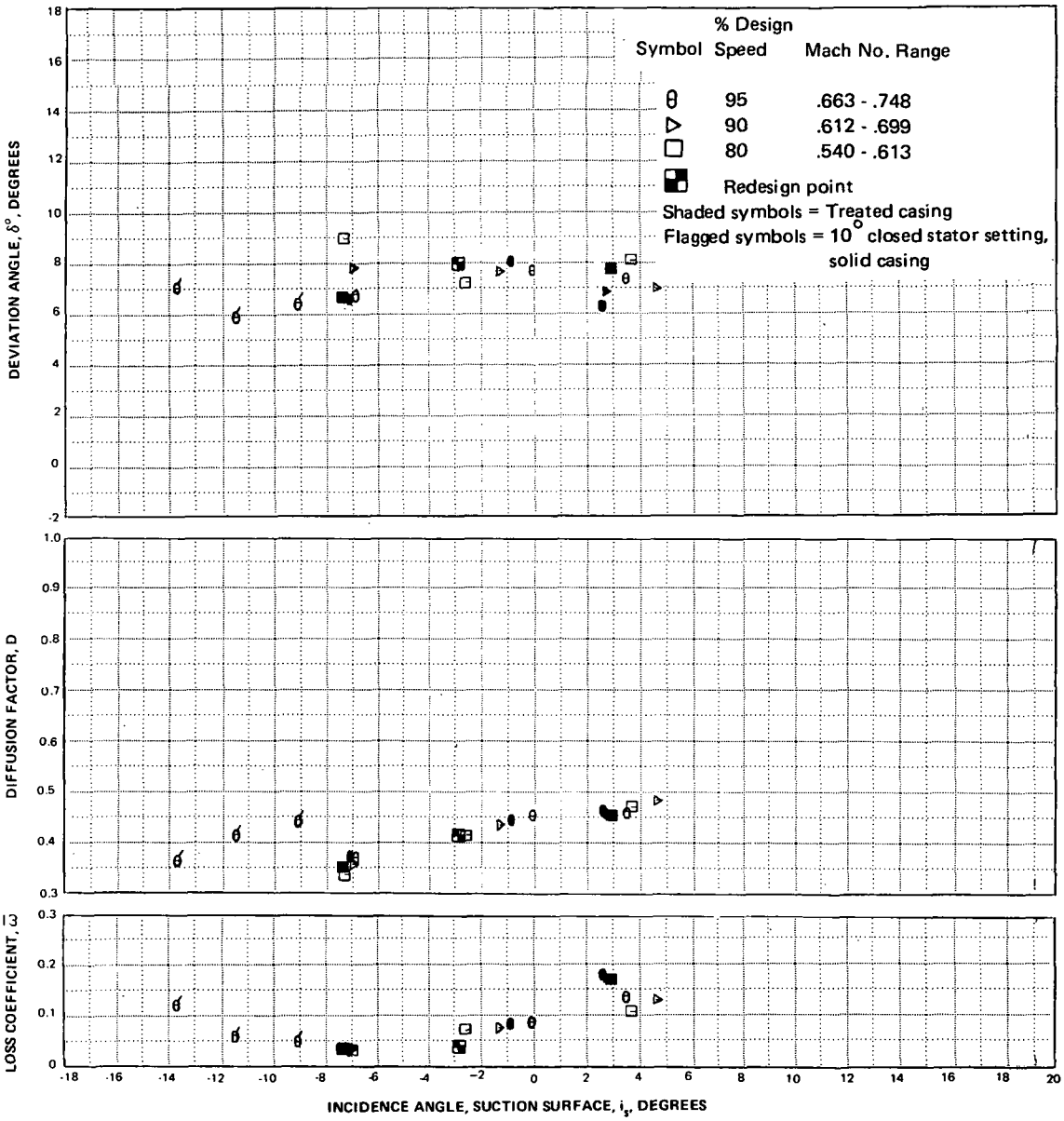


Figure 92b Stator Blade Element Performance With Hub Radial Distortion Showing the Effects of 10 Degree Closed Stator Setting and Rotor Tip Casing Treatment at 50 Percent Span From Hub

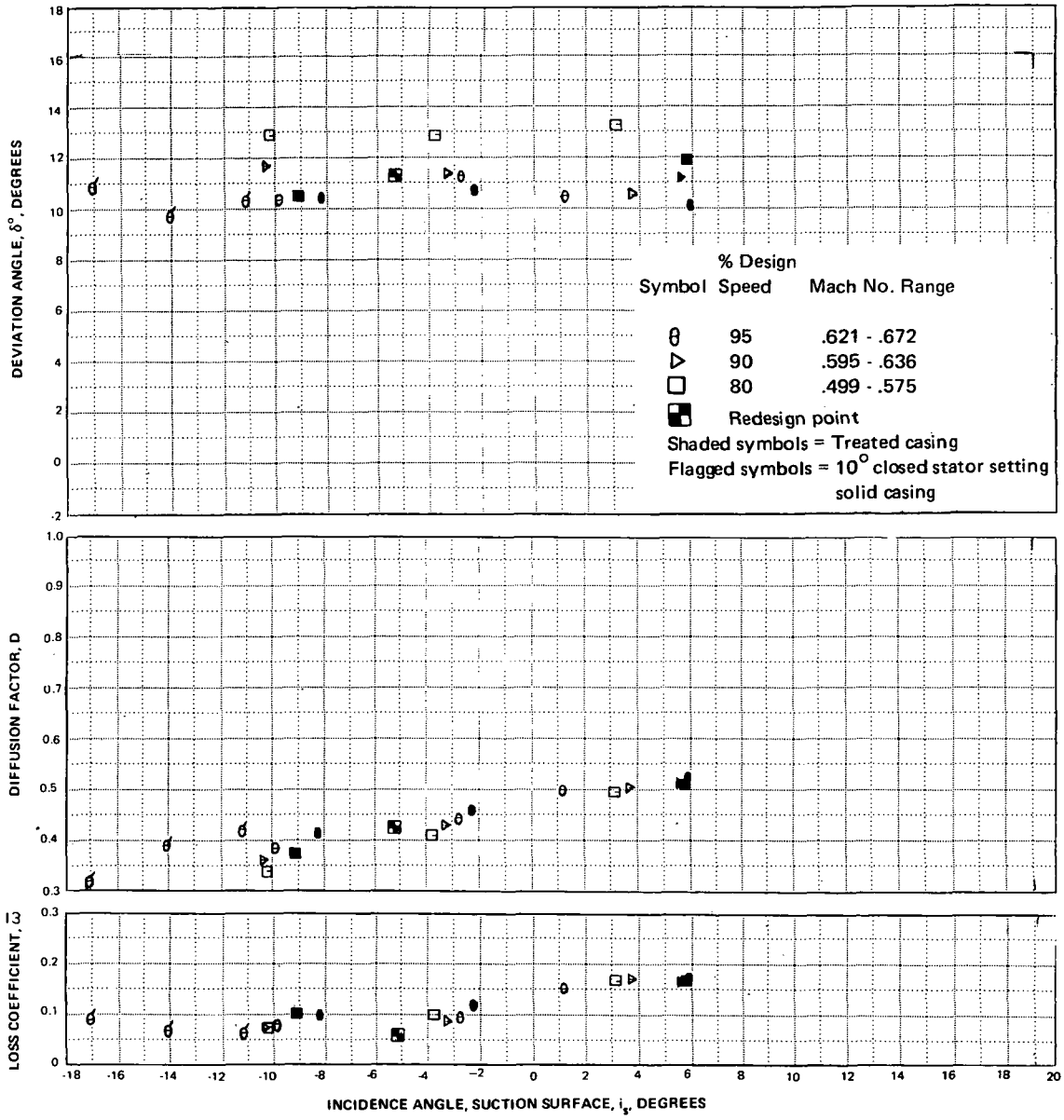


Figure 92c Stator Blade Element Performance With Hub Radial Distortion Showing the Effects of 10 Degree Closed Stator Setting and Rotor Tip Casing Treatment at 90 Percent Span From Hub

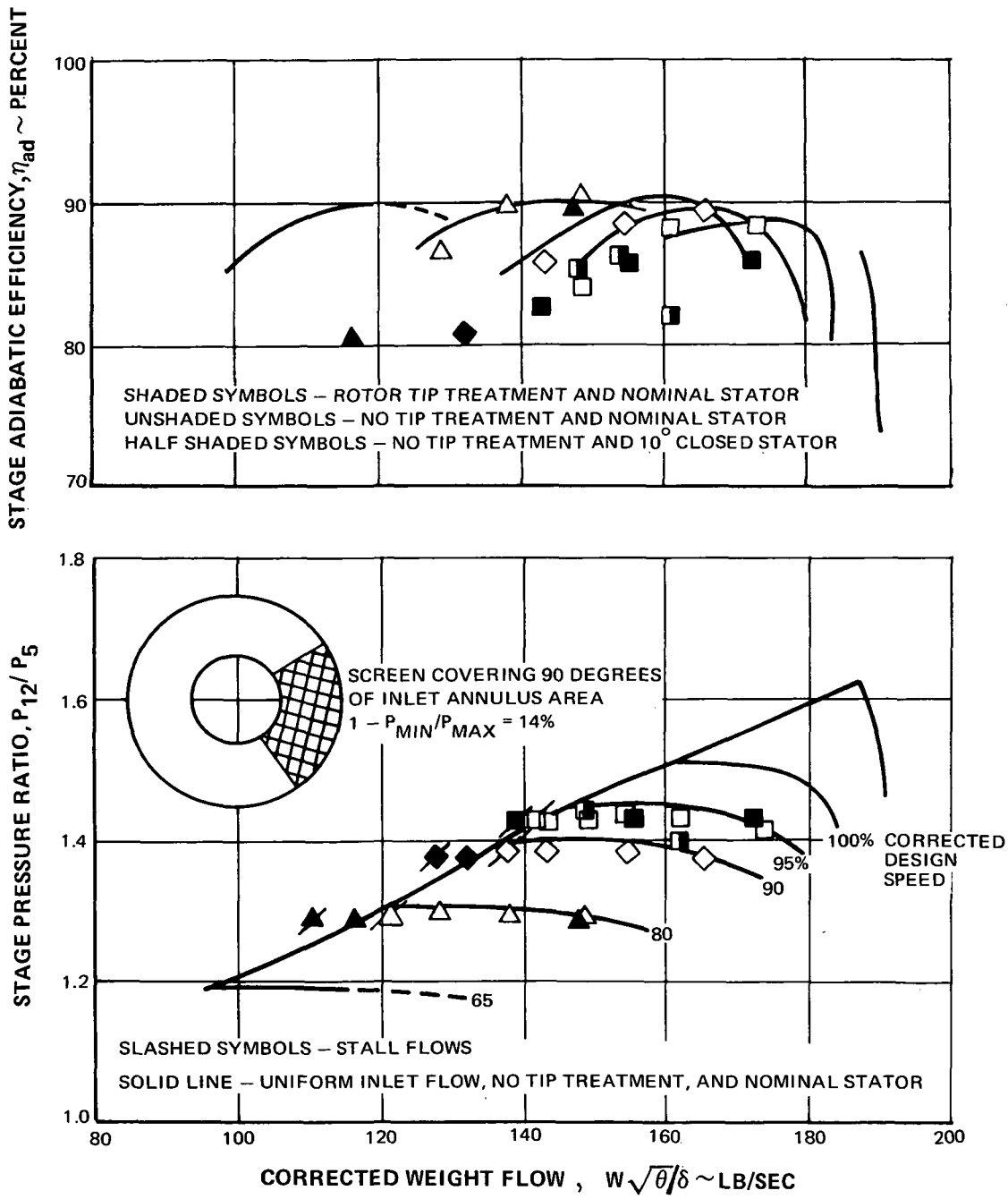


Figure 93 Overall Fan Stage Performance With Circumferential Distortion Showing Effect of Skewed Slots Rotor Tip Treatment and of Ten-Degree Closed Stator Setting

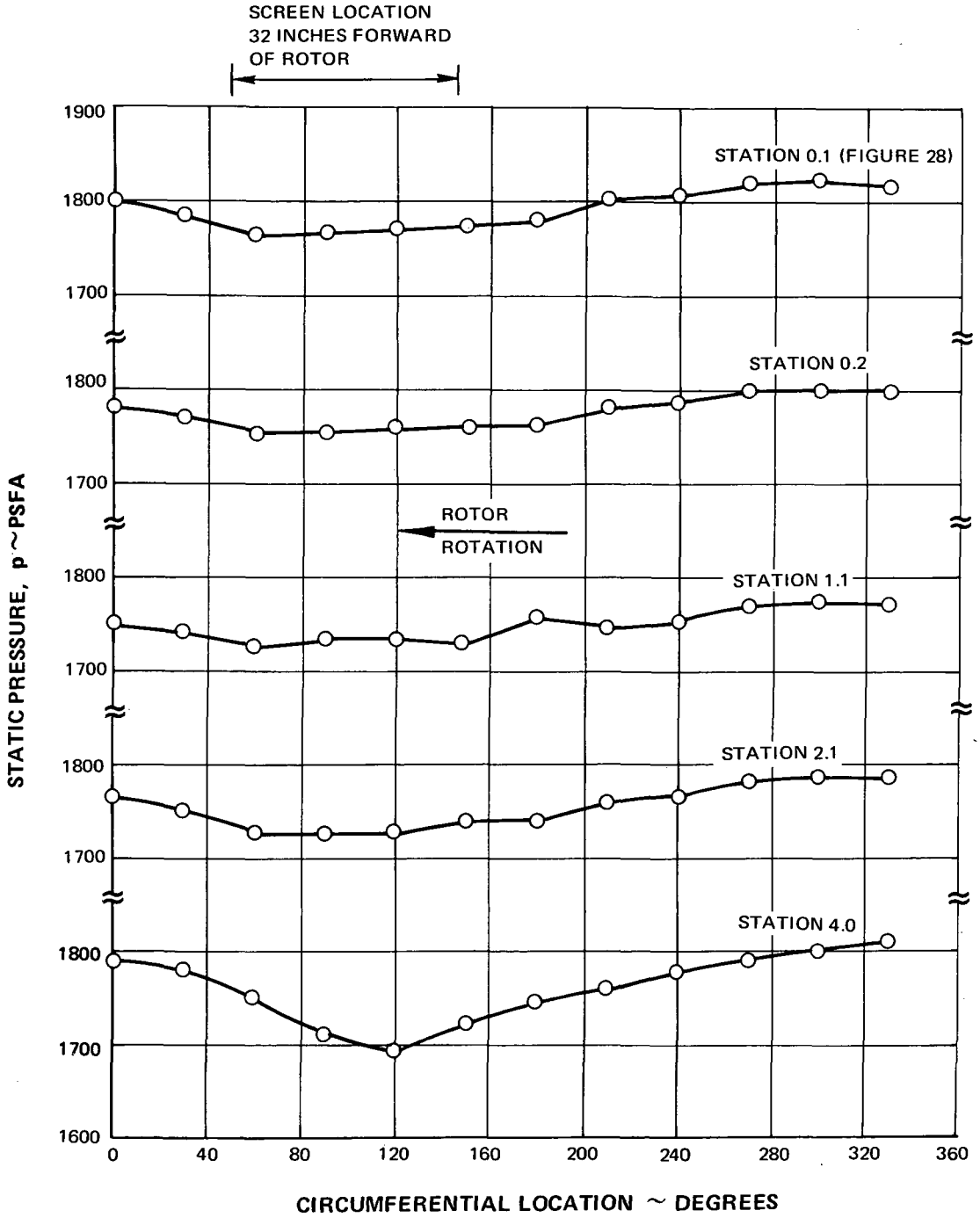


Figure 94 Circumferential Patterns of Measured Static Pressure on the Rotor Inlet Inner Case, With Circumferential Distortion, Near Stall at 95 Percent of Design Speed

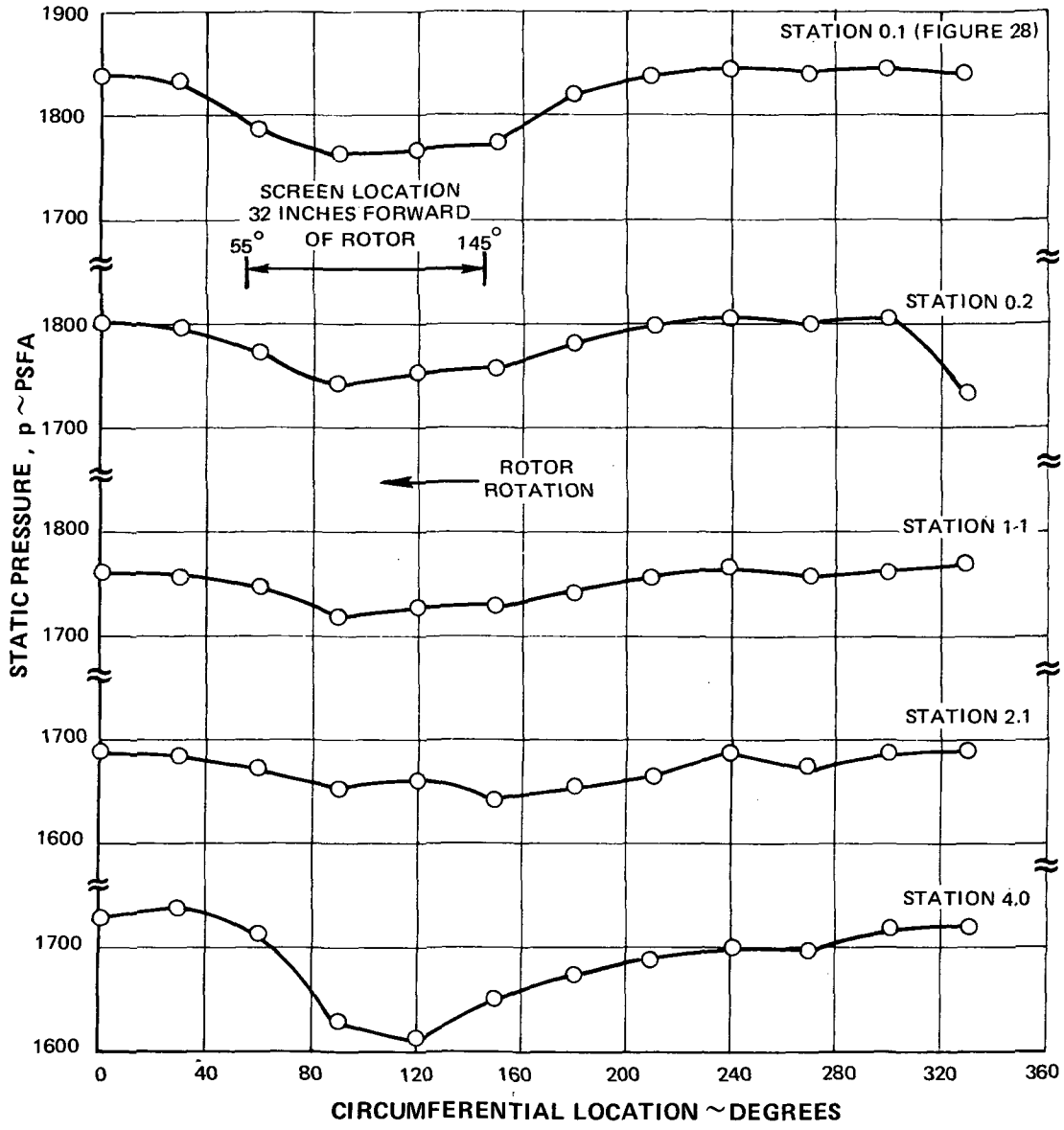


Figure 95 Circumferential Patterns of Measured Static Pressure on the Rotor Inlet Outer Case, With Circumferential Distortion, Near Stall at 95 Percent of Design Speed

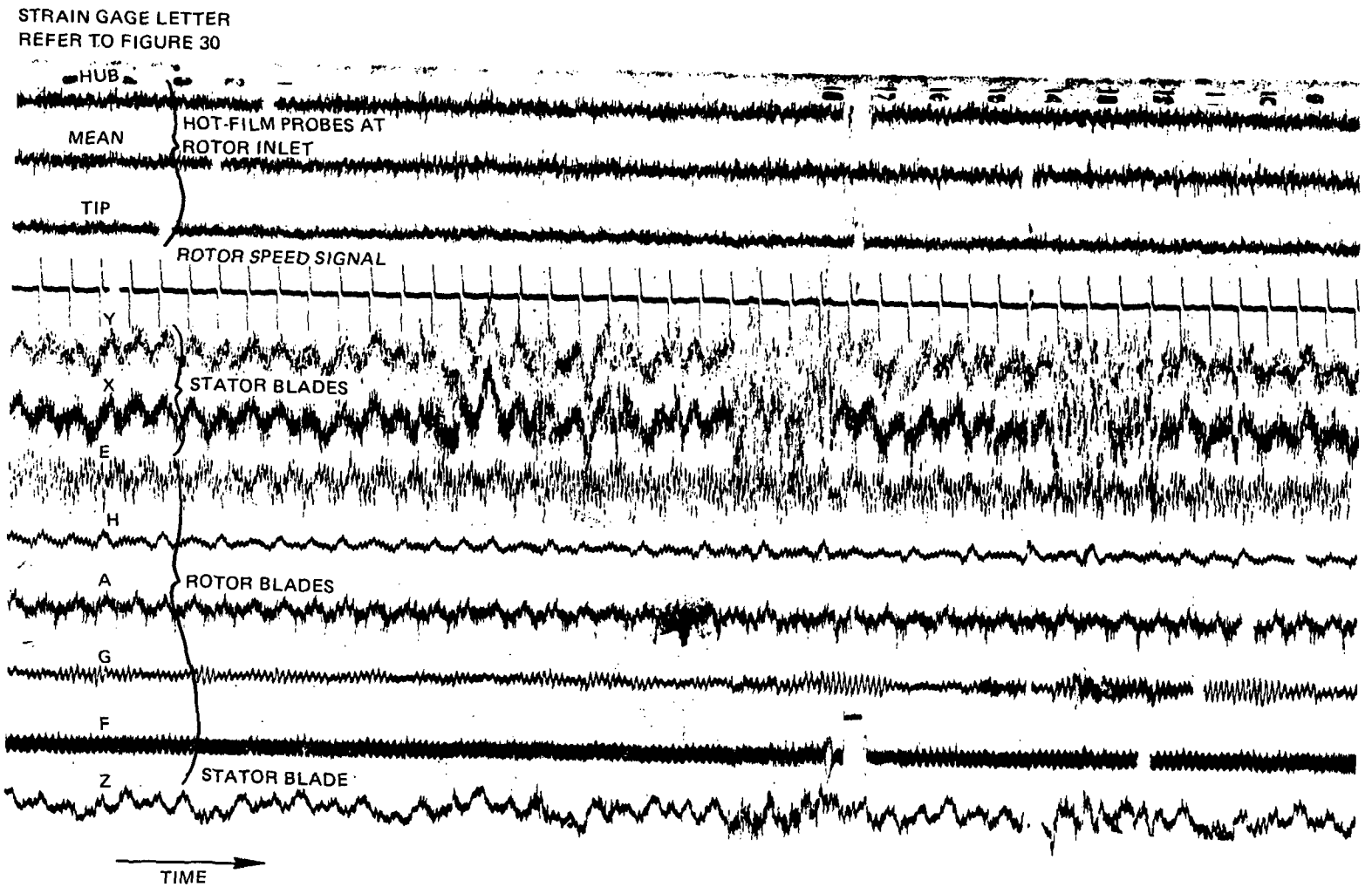


Figure 96a Oscillograph Trace of Stall With Circumferential Distortion at 95 Percent of Design Speed With Rotor Tip Casing Treatment

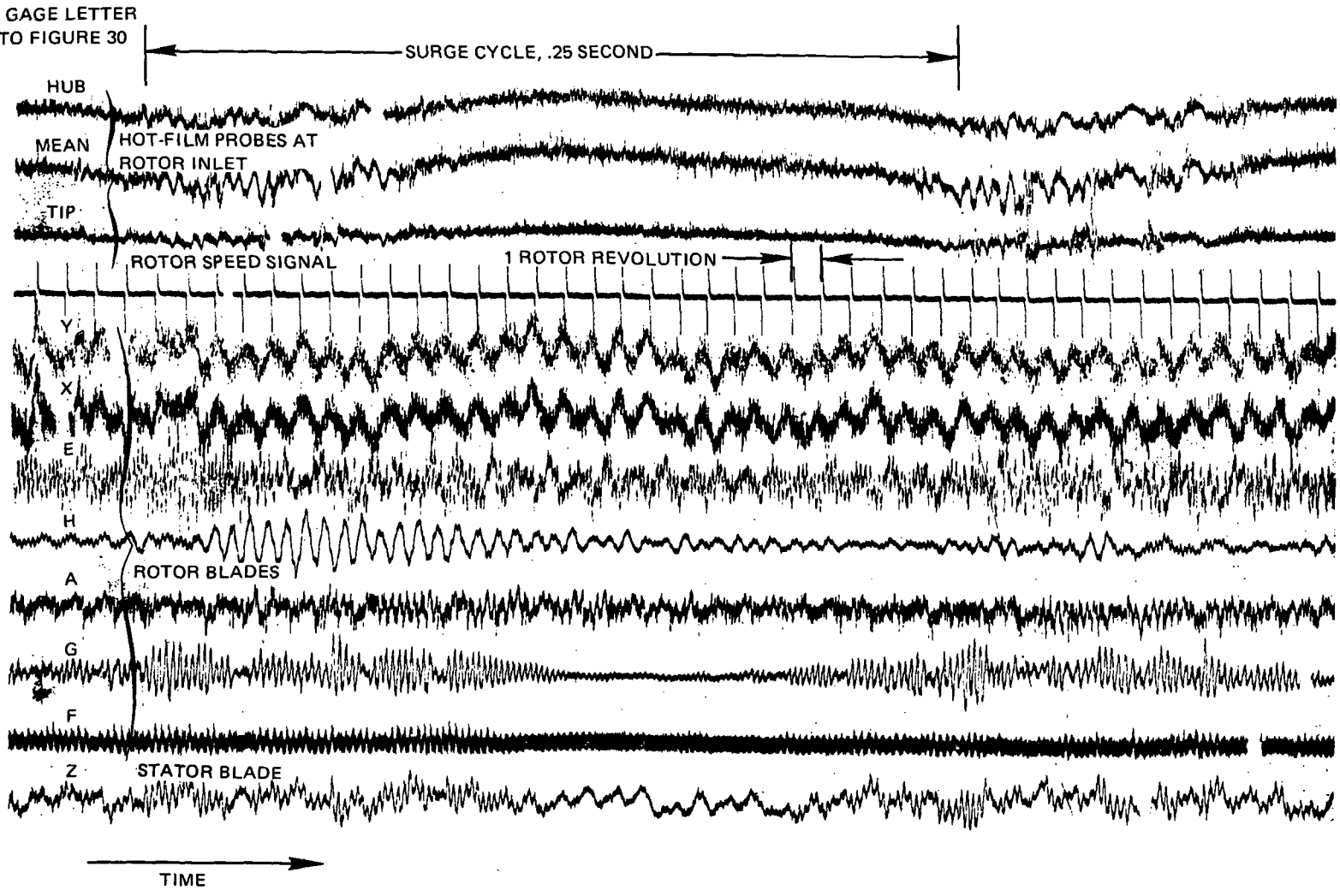


Figure 96b (Continued) Oscillograph Trace of Stall With Circumferential Distortion at 95 Percent of Design Speed With Rotor Tip Casing Treatment

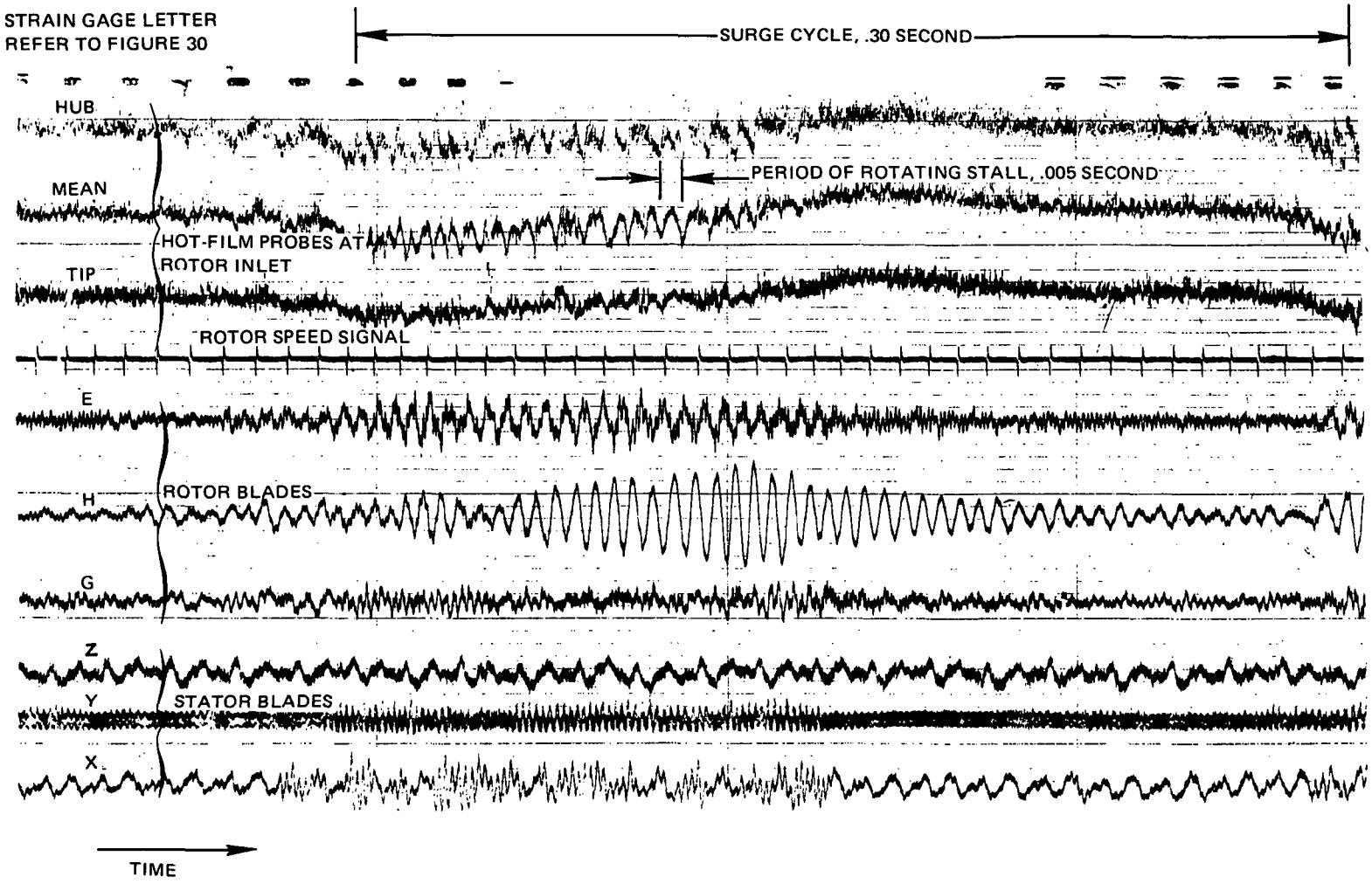
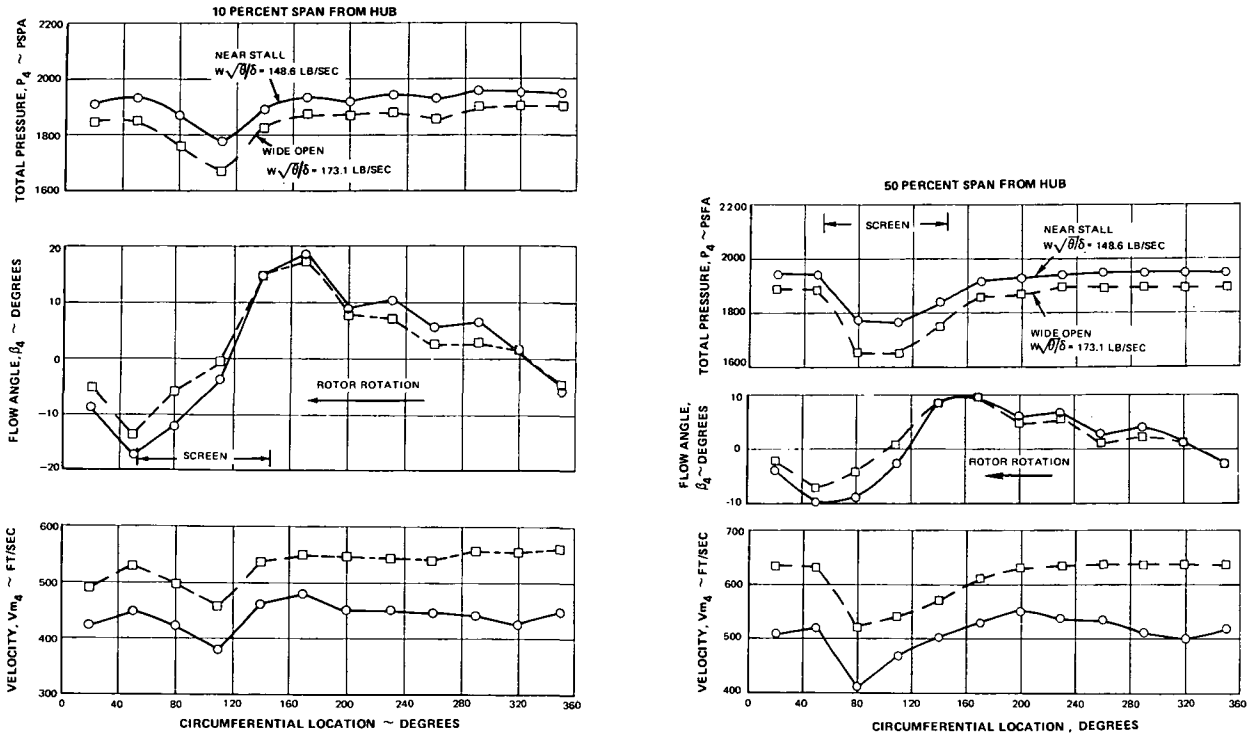


Figure 97 Oscillograph Trace of Stall With Circumferential Distortion at 95 Percent of Design Speed With Solid Casing



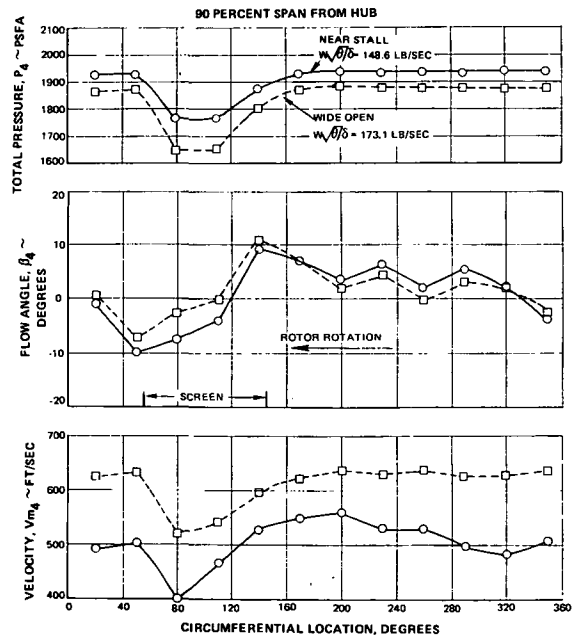


Figure 98 Rotor Inlet Circumferential Patterns of Velocity, Angle, and Pressure With Circumferential Distortion at 95 Percent of Design Speed With Nominal Stator

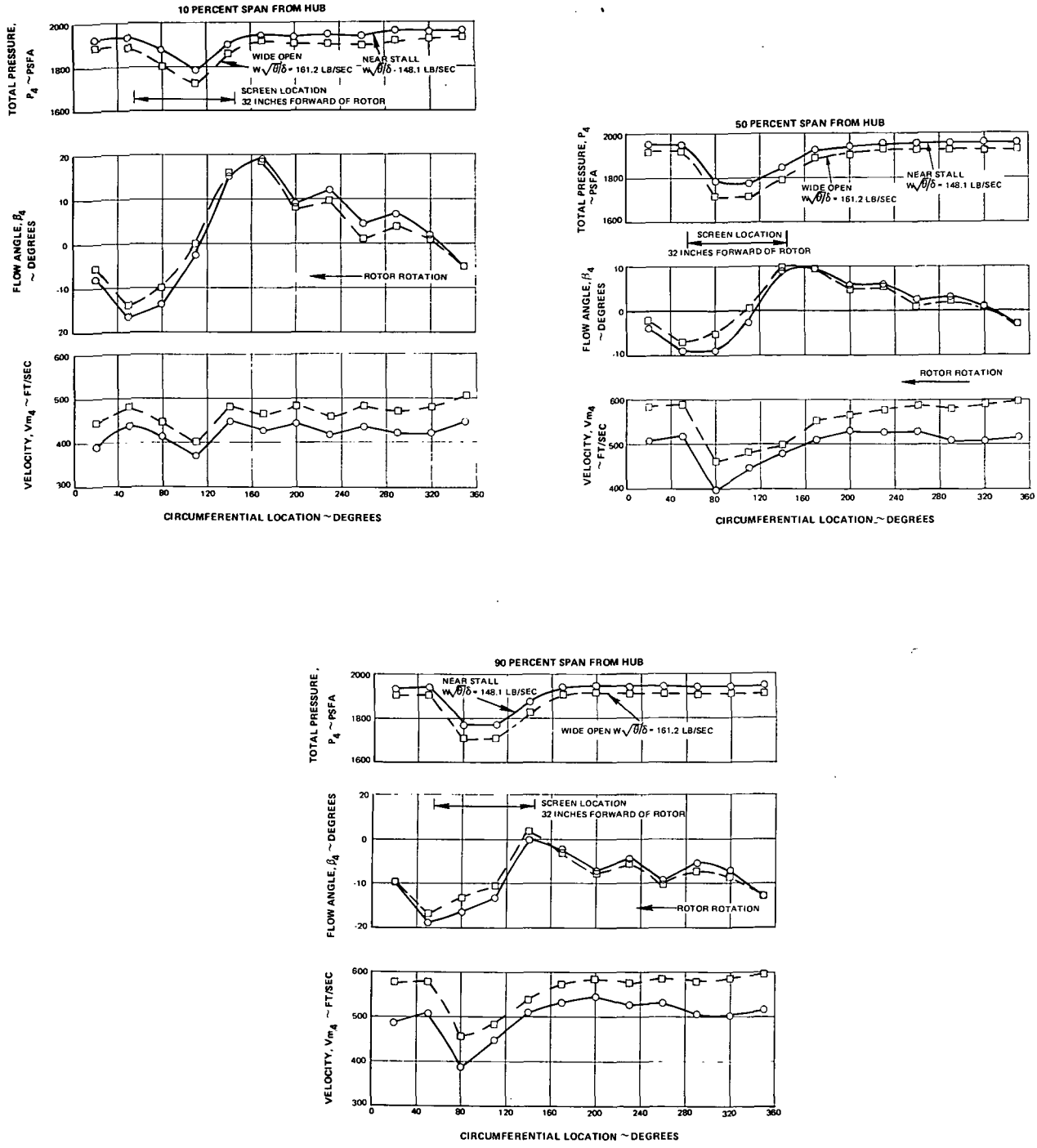


Figure 99 Rotor Inlet Circumferential Patterns of Velocity, Angle, and Pressure With Circumferential Distortion at 95 Percent of Design Speed With Ten-Degree Closed Stator Setting

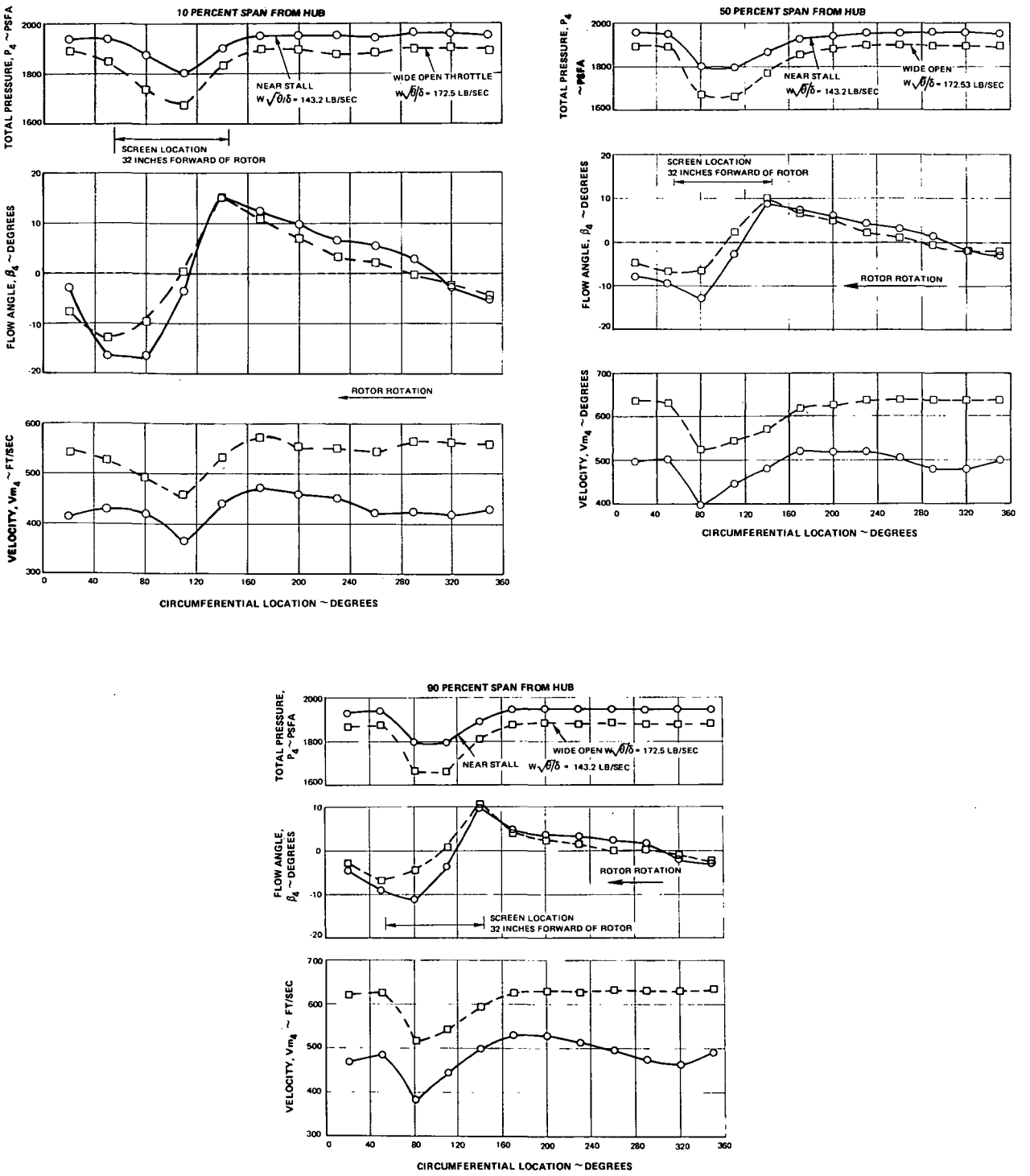


Figure 100 Rotor Inlet Circumferential Patterns of Velocity, Angle, and Pressure With Circumferential Distortion at 95 Percent of Design Speed With Nominal Stator and Treated Tip Casing

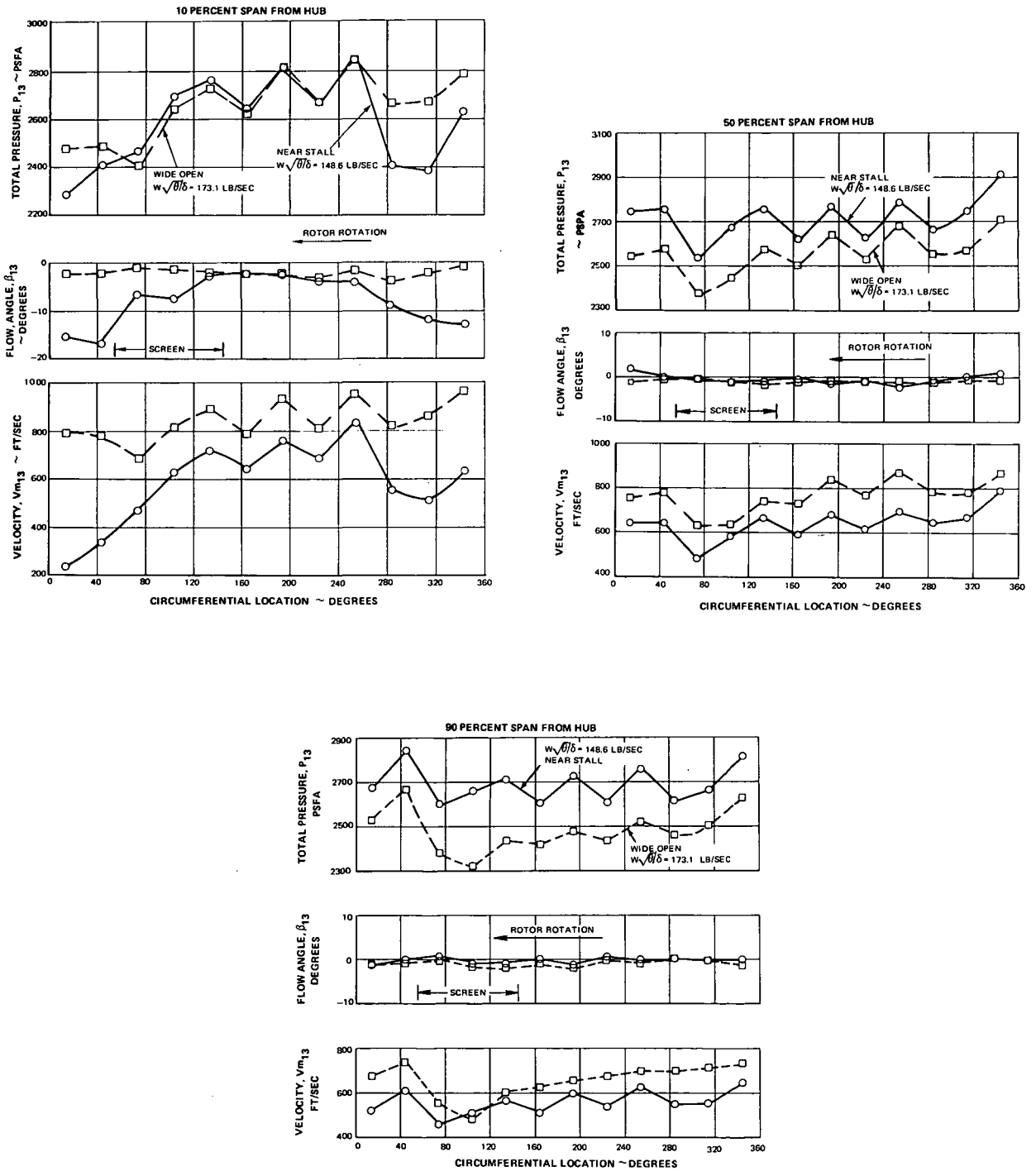


Figure 101 Stator Discharge Circumferential Patterns of Velocity, Angle, and Pressure With Circumferential Distortion at 95 Percent of Design Speed With Nominal Stator

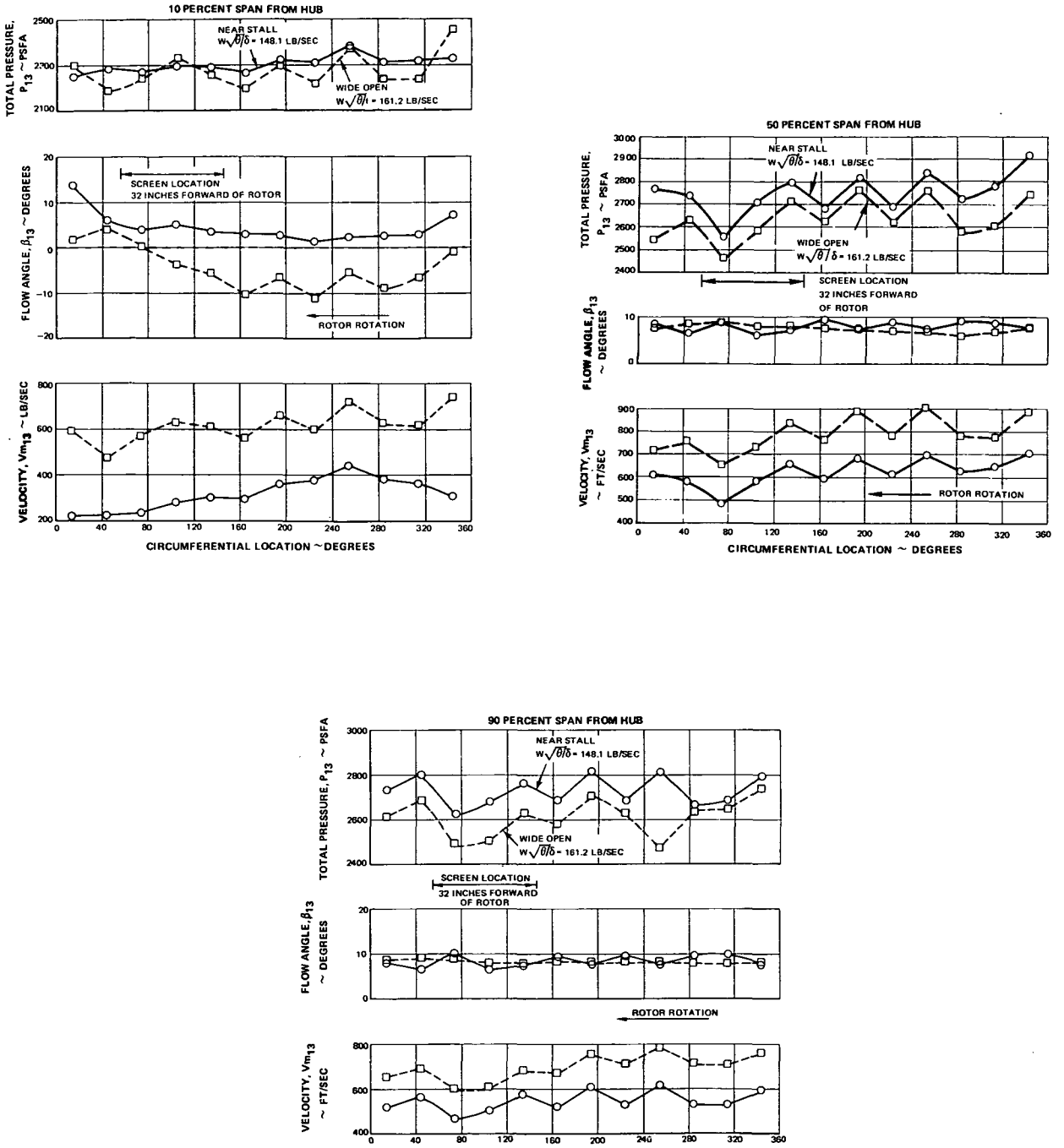


Figure 102 Stator Discharge Circumferential Patterns of Velocity, Angle, and Pressure With Circumferential Distortion at 95 Percent of Design Speed With Ten-Degree Closed Stator Setting

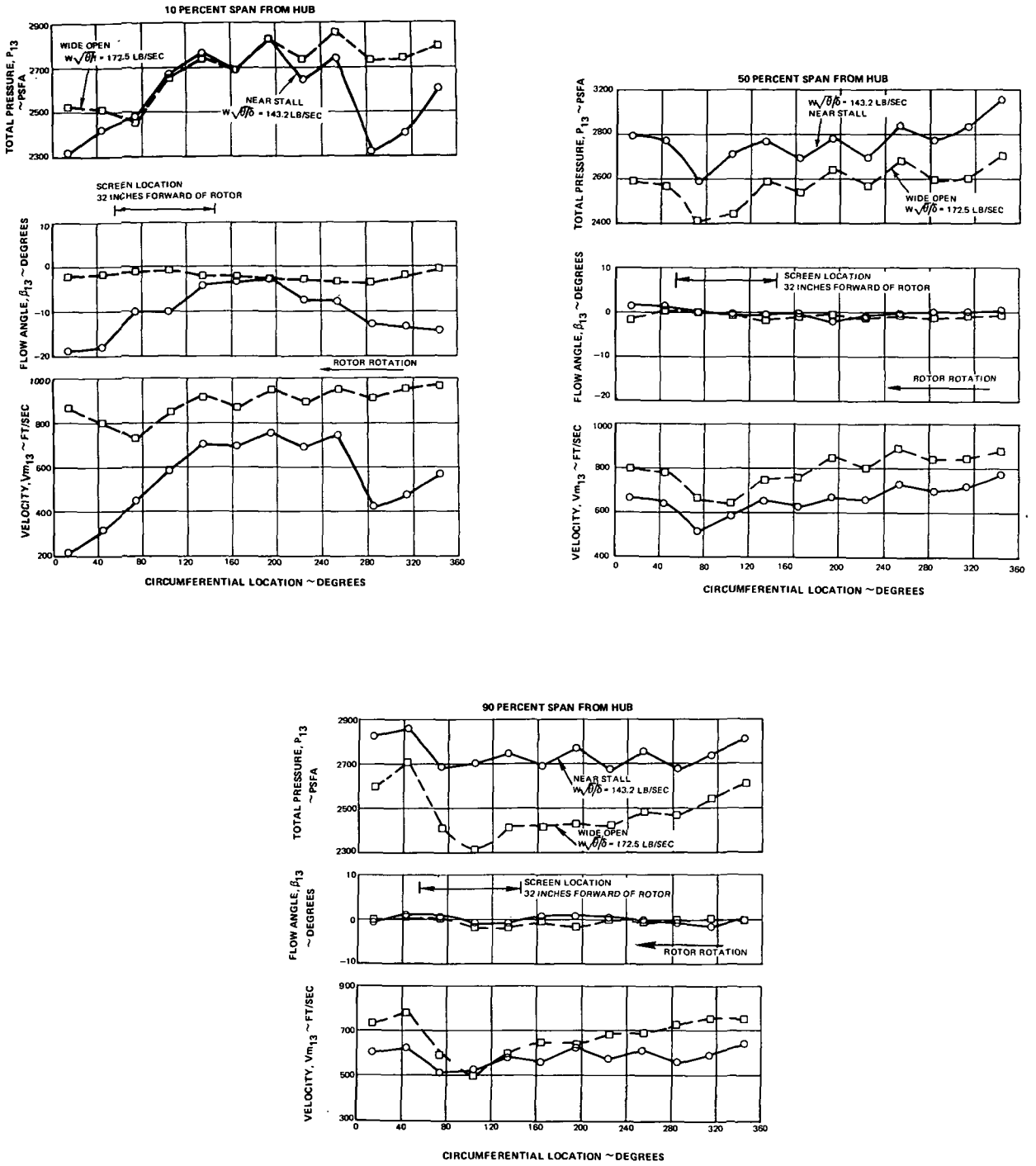


Figure 103 Stator Discharge Circumferential Patterns of Velocity, Angle, and Pressure With Circumferential Distortion at 95 Percent of Design Speed With Nominal Stator and Rotor Tip Casing Treatment

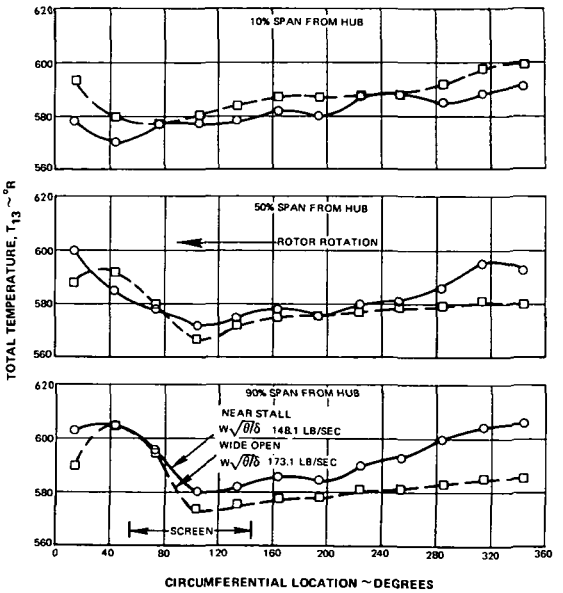


Figure 104 Stator Discharge Circumferential Patterns of Temperature With Circumferential Distortion at 95 Percent of Design Speed With Nominal Stator

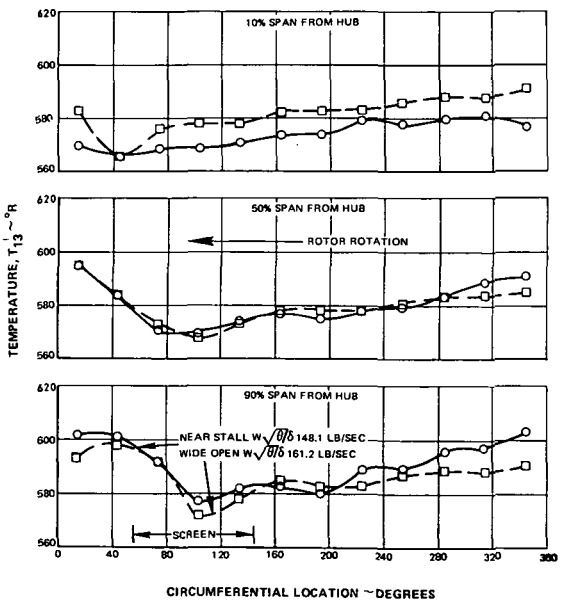


Figure 105 Stator Discharge Circumferential Patterns of Temperature With Circumferential Distortion at 95 Percent of Design Speed with Ten-Degree Closed Stator Setting

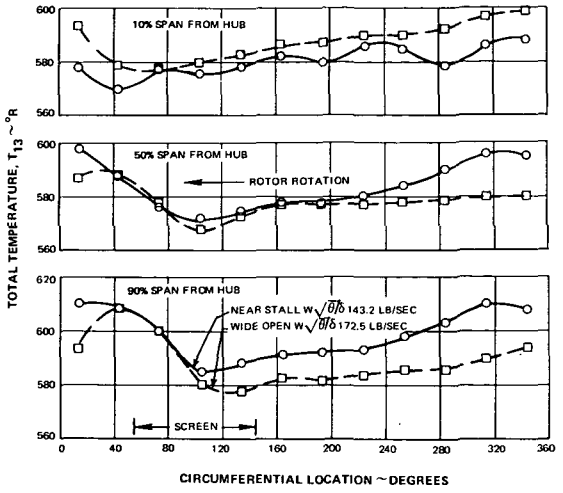


Figure 106 Stator Discharge Circumferential Patterns of Temperature With Circumferential Distortion at 95 Percent of Design Speed With Nominal Stator and Rotor Tip Casing Treatment

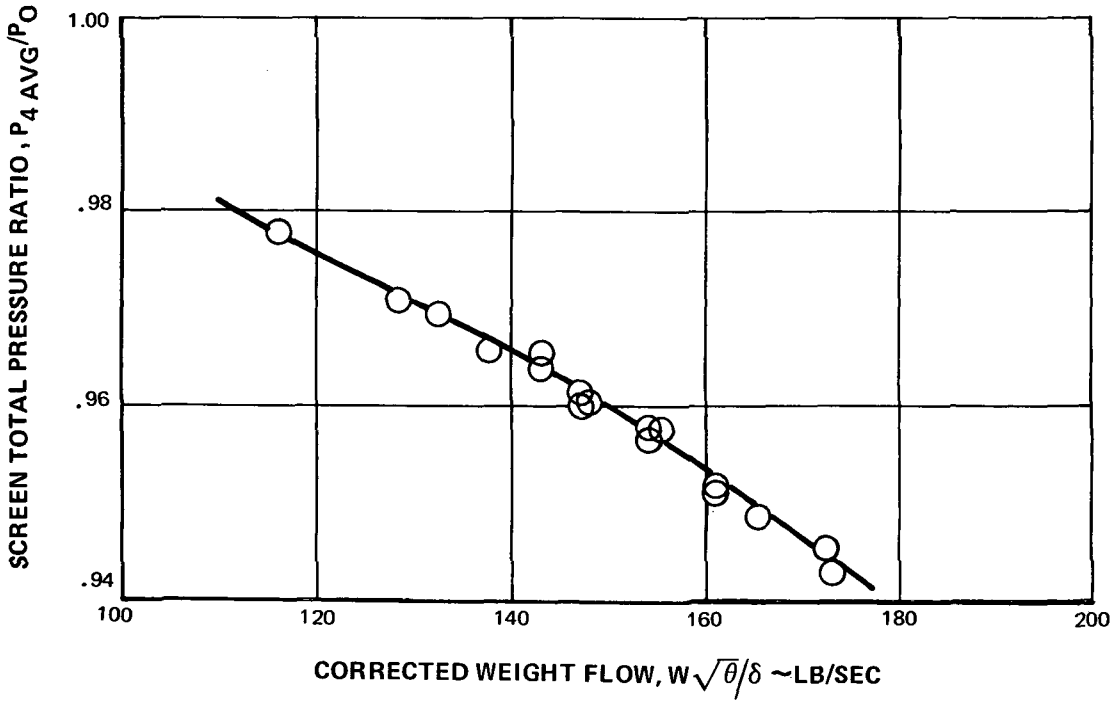


Figure 107 Circumferential Screen Pressure Ratio, P_4 Average/P_0

APPENDIX A
DEFINITION OF SYMBOLS AND PERFORMANCE PARAMETERS

SYMBOLS

A_{an}	-	annulus area, ft^2 (station 5, Figure 28)
A/A*	-	ratio of actual area to critical area (where local Mach number is one)
(A/A*)min	-	minimum value of A/A* in channel between blades
a	-	distance along chord from leading edge of airfoil to point of maximum camber, inches (meters)
c	-	chord (aerodynamic on flow surface), inches (meters)
D	-	diffusion factor
E	-	the angle between rays drawn to a conical design surface, one ray to the leading edge of an airfoil section, the second to some other point on the airfoil (Figure 108), degrees (radians)
dB	-	decibel
f	-	frequency
fz	-	bandwidth of each 1/3-octave, hertz
g_c	-	conversion factor, 32.17 $lb_m ft/lb\ sec^2$
H	-	reverberation time, sec
i_m	-	incidence angle, angle between inlet air direction and line tangent to blade mean camber line at leading edge, degrees
i_s	-	incidence angle, angle between inlet air direction and line tangent to blade suction surface at leading edge, degrees
M	-	Mach number
MR	-	mass average in radial direction (Tables XXII to XXVII)
N	-	rotor speed, rpm
P	-	total pressure, psfa

PWL	-	sound power level based on a reference power of 10^{-13} watt
p	-	static pressure, psfa
R	-	gas constant for air, ft lb/lb$_m$ °R
RLE	-	leading edge airfoil radius, inches
RTE	-	trailing edge airfoil radius, inches
r	-	radius measured from rig centerline, inches
SPL	-	sound pressure level (dB, 0.0002 dyne/cm^2)
T	-	total temperature, °R
t	-	static temperature, °R
t	-	blade maximum thickness, inches
U	-	rotor speed, ft/sec
V	-	air velocity, ft/sec
V_z	-	axial air velocity, ft/sec
Vm	-	meridional air velocity, $(V_r^2 + V_z^2)^{1/2}$, ft/sec
V_θ	-	tangential component of air velocity $(V^2 - Vm^2)^{1/2}$, ft/sec
v	-	volume of a chamber, ft^3
W	-	weight flow, lb/sec
z	-	dimension in the axial direction
β	-	absolute air angle [$\cot^{-1}(Vm/V_\theta)$], degrees (radians)
β'*	-	metal angle on conical surface between tangent to mean camber line and axial direction at leading and trailing edge, degrees (radians)
$\Delta\beta$	-	air turning angle $\beta'_5 - \beta'_6$ for rotors and $\beta_{11} - \beta_{12}$ for stators, degrees (radians)

γ - ratio of specific heat for air, 1.4

γ° - setting angle or blade chord angle, angle between a chord line and the axial direction (measured in a plane parallel to the z-axis (Figure 109), degrees (radians)

δ - ratio of inlet total pressure to standard pressure of 2116.22 lb/ft^2

δ° - deviation angle, angle between exit air direction and tangent to blade mean camber line at trailing edge, degrees

ϵ - angle between tangent to streamline projected on meridional plane and axial direction, degrees

η - efficiency, percent

θ - ratio of inlet total temperature to standard temperature of 518.6°R

ρ - mass density, lb-sec^2/ft^4

σ - solidity, ratio of chord to spacing

τ - camber distribution, $\frac{c \sin \phi_f/2}{c_f \sin \phi/2}$

ϕ - blade camber angle, difference between blade metal angles at leading and trailing edges on conical surfaces, $\beta'_5{}^* - \beta'_6{}^*$ for rotors and $\beta_{11}{}^* - \beta_{12}{}^*$ for stators, degree (radians)

ϕ_E - blade camber angle on plane of "unwrapped" conical surface $\beta'_5{}^* - \beta'_6{}^* - E_{TE}$ for rotors and $\beta_{11}{}^* - \beta_{12}{}^* - E_{TE}$ for stators (Figure 108), degrees (radians)

$\bar{\omega}$ - total pressure loss coefficient

ω - angular velocity of rotor, radians/sec

Superscripts

$'$ - relative to moving blades

$*$ - designates blade metal angle

Subscripts

ad - adiabatic

f	-	front
m	-	meridional (velocity)
p	-	polytropic or profile
r	-	radial direction
sh	-	shock
s	-	suction surface
z	-	axial direction
θ	-	tangential component
0	-	plenum chamber
4	-	instrument plane upstream of rotor
5	-	station at rotor inlet
6	-	station at rotor exit
10	-	instrument plane upstream of stator
11	-	station at stator leading edge
12	-	station at stator trailing edge
13	-	instrument plane downstream of stator
COR	-	corrected to standard day conditions

PERFORMANCE PARAMETER DEFINITIONS

a) Relative total temperature

$$T'_5 = t_5 \left[1 + \frac{\gamma - 1}{2} (M'_5)^2\right] \qquad \text{(rotor in)}$$

$$T'_6 = T'_5 + \left[\frac{(\omega r_5)^2 - (\omega r_6)^2}{\frac{2\gamma}{\gamma - 1} Rgc}\right] \qquad \text{(rotor out)}$$

b) Incidence angle based on mean camber line

$$i_m = \beta'_5 - \beta'^*_5 \qquad \text{(rotor)}$$

$$i_m = \beta_{11} - \beta^*_{11} \qquad \text{(stator)}$$

c) Deviation (DEV, $\delta°$)

$$\delta° = \beta'_6 - \beta'^*_6 \qquad \text{(rotor)}$$

$$\delta° = \beta_{12} - \beta^*_{12} \qquad \text{(stator)}$$

d) Diffusion factor (D-FAC)

$$D = 1 - \frac{V'_6}{V'_5} + \frac{r_6 V_{\theta 6} - r_5 V_{\theta 5}}{(r_5 + r_6)\sigma V'_5} \qquad \text{(rotor)}$$

$$D = 1 - \frac{V_{12}}{V_{11}} + \frac{r_{11} V_{\theta 11} - r_{12} V_{\theta 12}}{(r_{11} + r_{12})\sigma V_{11}} \qquad \text{(stator)}$$

e) Loss coefficient (OMEGA-B)

$$\bar{\omega} = \frac{P'_5 \left[\frac{T'_6}{T'_5}\right]^{\frac{\gamma}{\gamma - 1}} - P'_6}{P'_5 - p_5} \qquad \text{(rotor)}$$

$$\bar{\omega} = \frac{P_{11} - P_{12}}{P_{11} - p_{11}} \qquad \text{(stator)}$$

f) Loss parameter (LOSS-P)

$$\frac{\bar{\omega} \cos \beta'_6}{2\sigma} \qquad \text{(rotor)}$$

$$\frac{\bar{\omega} \cos \beta_{12}}{2\sigma} \qquad \text{(stator)}$$

g) Polytropic efficiency (EFF-P, TOTAL)

1) $$\eta_p = \frac{\frac{\gamma-1}{\gamma} \ln\left[\frac{P_6}{P_5}\right]}{\ln\left[\frac{T_6}{T_5}\right]} \qquad \text{(rotor)}$$

2) $$\eta p = \frac{\frac{\gamma-1}{\gamma} \ln\left[\frac{p_{12}}{p_{11}}\right]}{\ln\left[\frac{t_{12}}{t_{11}}\right]} \qquad \text{(stator)}$$

h) Adiabatic efficiency (EFF-AD, TOTAL)

$$\eta \text{ ad} = \frac{\left[\frac{P_6}{P_5}\right]^{\frac{\gamma-1}{\gamma}} - 1}{\left[\frac{T_6}{T_5}\right] - 1} \qquad \text{(rotor)}$$

$$\eta_{ad} = \frac{\left[\frac{P_{12}}{P_5}\right]^{\frac{\gamma-1}{\gamma}} - 1}{\left[\frac{T_{12}}{T_5}\right] - 1} \qquad \text{(stage)}$$

i) Wake blockage factor

$\bar{K}$ is the blockage factor used in the continuity equation:

$$W = \int \bar{K} \rho V_n \, dA$$

where V_n is the velocity component normal to the incremental area.

$$\bar{K} = \frac{\sum_1^n \rho AV}{n} \Big/ \rho AV_{avg}$$

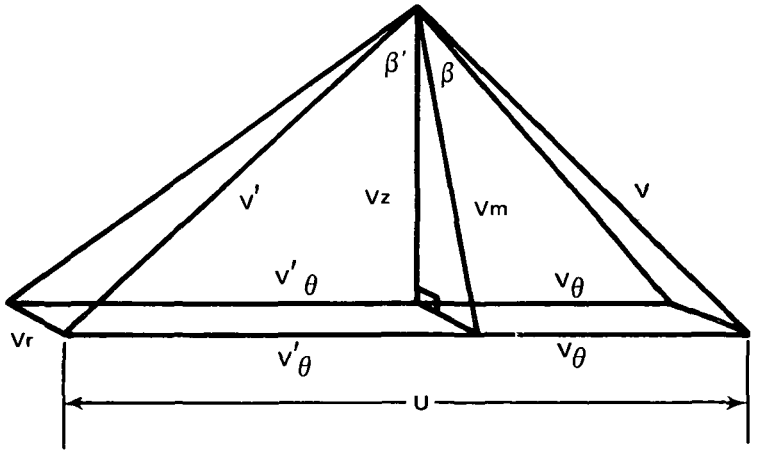
where n is number of tangential traverse points equally spaced across a stator gap and ρAV_{avg} is calculated from mass flow averaged values of P, p, and T at that radius

j) Stall margin

$$SM = \left[\left(\frac{\frac{P_{12}}{P_5}}{\frac{W\sqrt{\theta}}{\delta}} \right)_{\text{at stall}} \times \left(\frac{\frac{W\sqrt{\theta}}{\delta}}{\frac{P_{12}}{P_5}} \right)_{\text{at reference point}} - 1 \right] \times 100\%$$

For absolute values of stall margin, the reference is generally an operating point near peak efficiency.

k) Velocity diagram



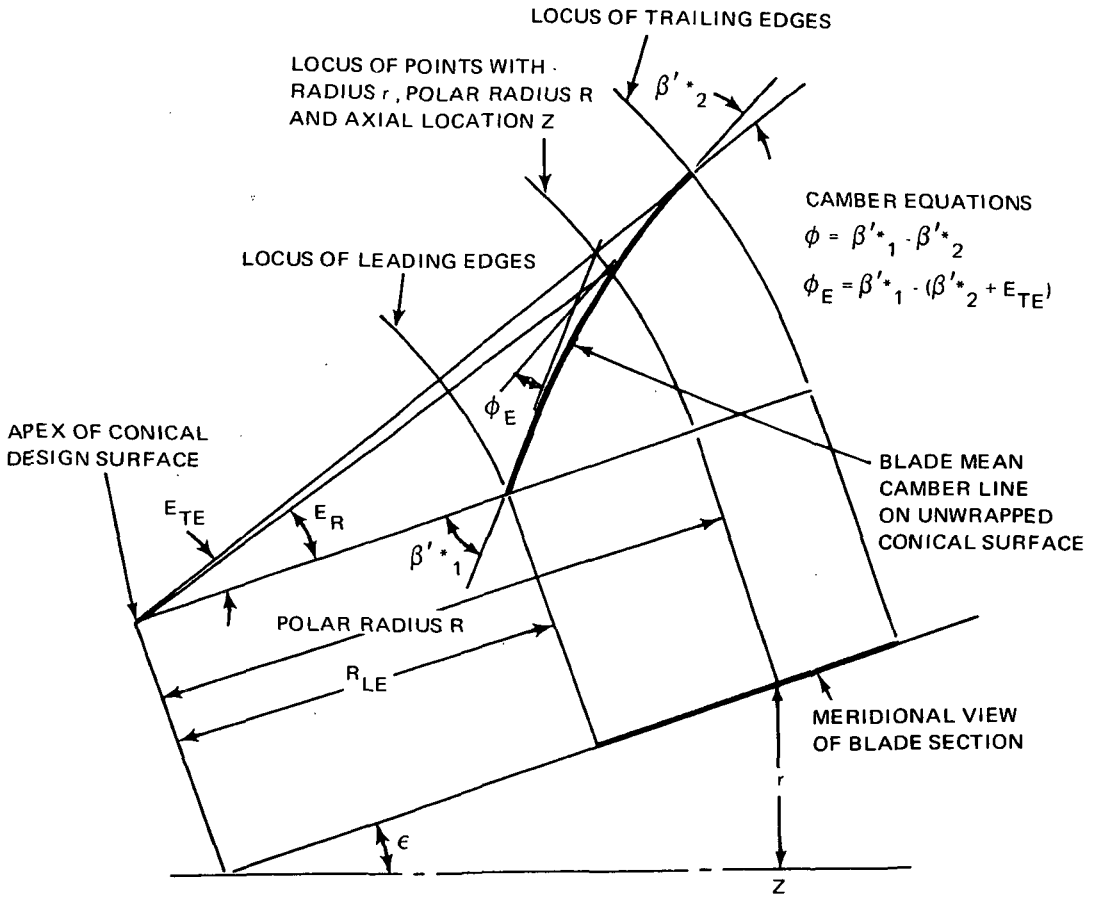


Figure 108 Graphical Definition of E and Airfoil Camber on an Unwrapped Conical Surface

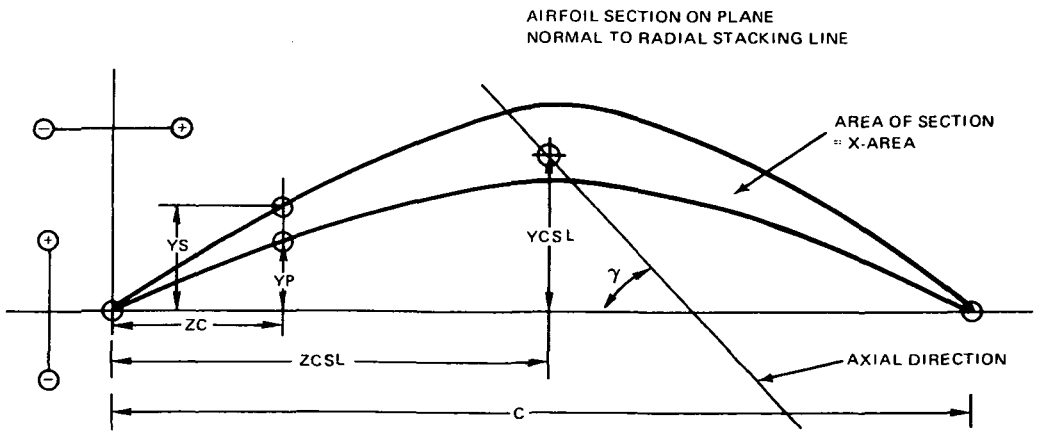


Figure 109 Airfoil Coordinate Definition for Manufacturing Sections

APPENDIX B

STATOR AIRFOIL DEFINITION ON FLOW SURFACES (ASSUMED CONICAL)

Inlet Root Diameter = 17.21 Inches (.4371 Meters) Inlet Tip Diameter = 31.0 Inches (.7874 Meters)
Exit Root Diameter = 18.91 Inches (.4803 Meters) Exit Tip Diameter = 31.0 Inches (.7874 Meters)

		Root										Tip
Percent Flow		0.0	6.66	13.33	20.00	26.66	40.00	53.33	66.66	80.00	93.33	100.00
Leading Edge Diameter		17.2	18.8	20.0	21.1	22.1	24.0	25.7	27.3	28.8	30.2	31.0
Trailing Edge Diameter		18.9	20.0	21.0	22.0	22.9	24.5	26.0	27.5	28.9	30.3	31.0
Average Percent Span		0.0	10.35	19.05	26.96	34.27	47.79	60.28	72.00	83.17	94.19	100.00
English Units												
c	Inches	2.628	2.624	2.620	2.614	2.610	2.600	2.590	2.580	2.570	2.560	2.550
c_f	Inches	0.960	0.960	0.960	0.965	0.970	0.978	1.010	1.070	1.150	1.250	1.300
$t_{max.}/c$		0.0410	0.0435	0.0460	0.0485	0.0510	0.0550	0.0590	0.0630	0.0670	0.0700	0.0720
% c to $t_{max.}$		56.00	55.40	54.80	54.30	54.00	53.00	52.50	51.60	51.00	50.40	50.00
a/c		0.5463	0.5444	0.5424	0.5400	0.5370	0.5300	0.5188	0.5085	0.5018	0.5008	0.5026
RLE	Inches	0.0048	0.0054	0.0056	0.0059	0.0062	0.0067	0.0071	0.0076	0.0080	0.0084	0.0086
RTE	Inches	0.0048	0.0054	0.0056	0.0059	0.0062	0.0067	0.0071	0.0076	0.0080	0.0084	0.0086
β^*_{rs}	Degrees	58.8	51.7	47.4	44.5	42.8	40.6	39.1	38.5	39.1	41.1	42.8
β^*_{s}	Degrees	56.5	49.0	44.3	41.0	39.0	36.1	34.0	32.7	32.7	34.4	35.9
$\emptyset''$	Degrees	73.1	63.3	59.5	53.4	48.9	44.1	42.1	42.0	43.8	46.0	47.6
$\emptyset_E$	Degrees	70.7	63.9	58.5	52.6	48.3	43.8	41.9	41.9	43.7	45.9	47.6
$\emptyset_f$	Degrees	11.2	10.5	10.3	10.3	10.4	11.2	13.4	16.1	19.1	21.9	23.5
$\emptyset_{Ef}$	Degrees	9.6	9.6	9.7	9.8	10.0	11.0	13.3	16.0	19.0	21.9	23.5
ϵ	Degrees	18.50	13.22	11.14	9.94	8.18	5.62	3.83	2.59	1.69	1.13	0.0
β^*_{sh}	Degrees	47.55	42.08	37.85	35.10	33.03	28.33	25.21	24.50	23.15	23.02	23.02
σ		2.3299	2.1575	2.0333	1.9327	1.8467	1.7068	1.5936	1.4948	1.4190	1.3470	1.3092
Metric Units												
c	Meters	.0668	.0666	.0665	.0664	.0663	.0660	.0658	.0655	.0653	.0650	.0648
c_f	Meters	.0244	.0244	.0244	.0245	.0246	.0248	.0257	.0272	.0292	.0318	.0330
$t_{max.}/c$		0.0410	0.0435	0.0460	0.0485	0.0510	0.0550	0.0590	0.0630	0.0670	0.0700	0.0720
% c to $t_{max.}$		56.00	55.40	54.80	54.30	54.00	53.00	52.50	51.60	51.00	50.40	50.00
a/c		0.5463	0.5444	0.5424	0.5400	0.5370	0.5300	0.5188	0.5085	0.5018	0.5008	0.5006
RLE	Meters	0.000122	0.000137	0.000142	0.000150	0.000157	0.000170	0.000180	0.000193	0.000203	0.000213	0.000218
RTE	Meters	0.000122	0.000137	0.000142	0.000150	0.000157	0.000170	0.000180	0.000193	0.000203	0.000213	0.000218
Θ^*_{rs}	Radians	1.0262	.9023	.8273	.7767	.7470	.7086	.6824	.6719	.6824	.7173	.7470
Θ''	Radians	.9861	.8552	.7732	.7156	.6807	.6301	.5934	.5707	.5707	.6004	.6266
$\emptyset$	Radians	1.2758	1.1048	1.0385	.9320	.8535	.7697	.7348	.7330	.7644	.8028	.8308
$\emptyset_E$	Radians	1.2339	1.1152	1.0210	.9180	.8430	.7644	.7313	.7313	.7627	.8011	.8308
$\emptyset_f$	Radians	.1955	.1833	.1798	.1798	.1815	.1955	.2339	.2809	.3334	.3822	.4101
$\emptyset_{Ef}$	Radians	.1675	.1675	.1693	.1710	.1745	.1920	.2321	.2792	.3316	.3822	.4101
ϵ	Radians	.3229	.2320	.1944	.1735	.1428	.0981	.0668	.0452	.0295	.0197	0.0
β_{sh}	Radians	.8299	.7344	.6606	.6126	.5765	.4944	.4400	.4276	.4040	.4018	.4018
σ		2.3299	2.1575	2.0333	1.9327	1.8467	1.7068	1.5936	1.4948	1.4190	1.3470	1.3092

APPENDIX C

STATOR AIRFOIL COORDINATES ON MANUFACTURING SURFACES

Stator Airfoil Coordinates on Manufacturing Surfaces

INCHES			METERS			INCHES			METERS		
ZC	YP	YS	ZC	YP	YS	ZC	YP	YS	ZC	YP	YS
-.0000	-.0056	.0062	.0000	-.0001	.0002	-.0000	-.0050	.0055	.0000	-.0001	.0001
.0050	-.0035	.0088	.0001	-.0001	.0002	.0045	-.0032	.0077	.0001	-.0001	.0002
.0802	.0274	.0470	.0020	.0007	.0012	.0808	.0267	.0454	.0021	.0007	.0012
.1603	.0593	.0865	.0041	.0015	.0022	.1616	.0591	.0849	.0041	.0015	.0022
.2405	.0904	.1250	.0061	.0023	.0032	.2425	.0887	.1232	.0062	.0023	.0031
.3206	.1205	.1623	.0081	.0031	.0041	.3233	.1183	.1604	.0082	.0030	.0041
.4008	.1497	.1984	.0102	.0038	.0050	.4041	.1470	.1963	.0103	.0037	.0050
.4810	.1781	.2335	.0122	.0045	.0059	.4849	.1748	.2312	.0123	.0044	.0059
.5611	.2056	.2674	.0143	.0052	.0068	.5658	.2017	.2649	.0144	.0051	.0067
.6413	.2323	.3007	.0163	.0059	.0076	.6466	.2278	.2976	.0164	.0058	.0076
.7215	.2581	.3334	.0183	.0066	.0085	.7274	.2531	.3299	.0185	.0064	.0084
.8016	.2831	.3640	.0204	.0072	.0092	.8082	.2774	.3605	.0205	.0070	.0092
.8818	.3069	.3921	.0224	.0078	.0100	.8890	.3008	.3884	.0226	.0076	.0099
.9620	.3273	.4169	.0244	.0083	.0106	.9699	.3211	.4132	.0246	.0082	.0105
1.0421	.3446	.4373	.0265	.0088	.0111	1.0507	.3380	.4336	.0267	.0086	.0110
1.1223	.3584	.4539	.0285	.0091	.0115	1.1315	.3516	.4499	.0287	.0089	.0114
1.2024	.3691	.4661	.0305	.0094	.0118	1.2123	.3620	.4620	.0308	.0092	.0117
1.2826	.3761	.4746	.0326	.0096	.0121	1.2932	.3687	.4703	.0328	.0094	.0119
1.3628	.3799	.4788	.0346	.0096	.0122	1.3740	.3722	.4742	.0349	.0095	.0120
1.4429	.3802	.4793	.0367	.0097	.0122	1.4548	.3723	.4744	.0370	.0095	.0120
1.5231	.3772	.4757	.0387	.0096	.0121	1.5356	.3691	.4706	.0390	.0094	.0120
1.6033	.3708	.4678	.0407	.0094	.0119	1.6165	.3625	.4625	.0411	.0092	.0117
1.6834	.3606	.4560	.0428	.0092	.0116	1.6973	.3522	.4503	.0431	.0089	.0114
1.7636	.3469	.4396	.0448	.0088	.0112	1.7781	.3383	.4337	.0452	.0086	.0110
1.8438	.3290	.4186	.0468	.0084	.0106	1.8589	.3205	.4125	.0472	.0081	.0105
1.9239	.3069	.3926	.0489	.0078	.0100	1.9397	.2985	.3864	.0493	.0076	.0098
2.0041	.2806	.3612	.0509	.0071	.0092	2.0206	.2724	.3543	.0513	.0069	.0090
2.0842	.2494	.3239	.0529	.0063	.0082	2.1014	.2415	.3177	.0534	.0061	.0081
2.1644	.2127	.2798	.0550	.0054	.0071	2.1822	.2055	.2738	.0554	.0052	.0070
2.2446	.1702	.2278	.0570	.0043	.0058	2.2630	.1639	.2224	.0575	.0042	.0056
2.3247	.1209	.1668	.0590	.0031	.0042	2.3439	.1158	.1623	.0595	.0029	.0041
2.4049	.0635	.0941	.0611	.0016	.0024	2.4247	.0602	.0912	.0616	.0015	.0023
2.4825	-.0022	.0079	.0631	-.0001	.0002	2.5026	-.0024	.0085	.0636	-.0001	.0002
2.4851	-.0043	.0051	.0631	-.0001	.0001	2.5055	-.0047	.0055	.0636	-.0001	.0001

RADIUS (INCHES) = 8.3	RADIUS (METERS) = .2095	RADIUS (INCHES) = 8.5	RADIUS (METERS) = .2172
CHORD (INCHES) = 2.485	CHORD (METERS) = .0631	CHORD (INCHES) = 2.505	CHORD (METERS) = .0636
ZCCG (INCHES) = 1.3219	ZCCG (METERS) = .0336	ZCCG (INCHES) = 1.3353	ZCCG (METERS) = .0339
YCCG (INCHES) = .3296	YCCG (METERS) = .0084	YCCG (INCHES) = .3251	YCCG (METERS) = .0083
RLE (INCHES) = .0056	RLE (METERS) = .000141	RLE (INCHES) = .0050	RLE (METERS) = .000127
RTE (INCHES) = .0036	RTE (METERS) = .000092	RTE (INCHES) = .0040	RTE (METERS) = .000101
X-AREA (SQ. IN.) = .1764	X-AREA(SQ.METERS) = .000114	X-AREA (SQ. IN.) = .1820	X-AREA(SQ.METERS) = .000117
GAMMA-CHORD(DEG.) = 31.52	GAMMA-CHORD(RAD.) = .5501	GAMMA-CHORD(DEG.) = 29.79	GAMMA-CHORD(RAD.) = .5199

See Figure 109 for Parameter Definitions

Stator Airfoil Coordinates on Manufacturing Surfaces

INCHES			METERS			INCHES			METERS		
ZC	YP	YS	ZC	YP	YS	ZC	YP	YS	ZC	YP	YS
-.0000	-.0051	.0056	.0000	-.0001	.0001	-.0000	-.0055	.0059	.0000	-.0001	.0001
.0048	-.0034	.0078	.0001	-.0001	.0002	.0051	-.0037	.0083	.0001	-.0001	.0002
.0817	.0238	.0432	.0021	.0006	.0011	.0824	.0232	.0442	.0021	.0006	.0011
.1634	.0528	.0807	.0042	.0013	.0020	.1649	.0515	.0817	.0042	.0013	.0021
.2452	.0813	.1175	.0062	.0021	.0030	.2473	.0789	.1179	.0063	.0020	.0030
.3269	.1089	.1531	.0083	.0028	.0039	.3298	.1055	.1529	.0084	.0027	.0039
.4086	.1358	.1877	.0104	.0035	.0048	.4122	.1311	.1864	.0105	.0033	.0047
.4903	.1619	.2211	.0125	.0041	.0056	.4946	.1558	.2189	.0126	.0040	.0056
.5720	.1871	.2535	.0145	.0048	.0064	.5771	.1796	.2500	.0147	.0046	.0064
.6538	.2115	.2849	.0166	.0054	.0072	.6595	.2026	.2802	.0168	.0051	.0071
.7355	.2354	.3153	.0187	.0060	.0080	.7420	.2249	.3091	.0188	.0057	.0079
.8172	.2584	.3450	.0208	.0066	.0088	.8244	.2465	.3372	.0209	.0063	.0086
.8989	.2803	.3723	.0228	.0071	.0095	.9068	.2667	.3633	.0230	.0068	.0092
.9806	.2998	.3962	.0249	.0076	.0101	.9893	.2847	.3858	.0251	.0072	.0098
1.0623	.3159	.4161	.0270	.0080	.0106	1.0717	.2997	.4044	.0272	.0076	.0103
1.1441	.3289	.4318	.0291	.0084	.0110	1.1542	.3115	.4189	.0293	.0079	.0106
1.2258	.3387	.4434	.0311	.0086	.0113	1.2366	.3201	.4296	.0314	.0081	.0109
1.3075	.3451	.4513	.0332	.0088	.0115	1.3190	.3258	.4365	.0335	.0083	.0111
1.3892	.3485	.4551	.0353	.0089	.0116	1.4015	.3284	.4395	.0356	.0083	.0112
1.4709	.3486	.4550	.0374	.0089	.0116	1.4839	.3279	.4387	.0377	.0083	.0111
1.5527	.3456	.4512	.0394	.0088	.0115	1.5664	.3242	.4341	.0398	.0082	.0110
1.6344	.3391	.4433	.0415	.0086	.0113	1.6488	.3175	.4255	.0419	.0081	.0108
1.7161	.3292	.4311	.0436	.0084	.0110	1.7312	.3074	.4129	.0440	.0078	.0105
1.7978	.3159	.4147	.0457	.0080	.0105	1.8137	.2941	.3963	.0461	.0075	.0101
1.8795	.2987	.3938	.0477	.0076	.0100	1.8961	.2774	.3753	.0482	.0070	.0095
1.9613	.2778	.3682	.0498	.0071	.0094	1.9786	.2571	.3499	.0503	.0065	.0089
2.0430	.2528	.3374	.0519	.0064	.0086	2.0610	.2330	.3196	.0523	.0059	.0081
2.1247	.2234	.3011	.0540	.0057	.0076	2.1434	.2050	.2842	.0544	.0052	.0072
2.2064	.1893	.2587	.0560	.0048	.0066	2.2259	.1729	.2431	.0565	.0044	.0062
2.2881	.1501	.2092	.0581	.0038	.0053	2.3083	.1362	.1958	.0586	.0035	.0050
2.3699	.1052	.1519	.0602	.0027	.0039	2.3908	.0945	.1413	.0607	.0024	.0036
2.4516	.0537	.0848	.0623	.0014	.0022	2.4732	.0474	.0786	.0628	.0012	.0020
2.5299	-.0026	.0092	.0643	-.0001	.0002	2.5517	-.0028	.0098	.0648	-.0001	.0002
2.5333	-.0051	.0059	.0643	-.0001	.0002	2.5556	-.0053	.0063	.0649	-.0001	.0002

RADIUS (INCHES) = 9.0	RADIUS (METERS) = .2286	RADIUS (INCHES) = 9.4	RADIUS (METERS) = .2400
CHORD (INCHES) = 2.533	CHORD (METERS) = .0643	CHORD (INCHES) = 2.556	CHORD (METERS) = .0649
ZCCG (INCHES) = 1.3445	ZCCG (METERS) = .0341	ZCCG (INCHES) = 1.3467	ZCCG (METERS) = .0342
YCCG (INCHES) = .3079	YCCG (METERS) = .0078	YCCG (INCHES) = .2937	YCCG (METERS) = .0075
RLE (INCHES) = .0052	RLE (METERS) = .000132	RLE (INCHES) = .0055	RLE (METERS) = .000140
RTE (INCHES) = .0045	RTE (METERS) = .000115	RTE (INCHES) = .0050	RTE (METERS) = .000127
X-AREA (SQ. IN.) = .1912	X-AREA (SQ.METERS) = .000123	X-AREA (SQ. IN.) = .2008	X-AREA (SQ.METERS) = .000130
GAMMA-CHORD (DEG.) = 26.64	GAMMA-CHORD (RAD.) = .4649	GAMMA-CHORD (DEG.) = 23.62	GAMMA-CHORD (RAD.) = .4122

See Figure 109 for Parameter Definitions

Stator Airfoil Coordinates on Manufacturing Surfaces

INCHES			METERS		
ZC	YP	YS	ZC	YP	YS
-.0000	-.0056	.0060	.0000	-.0001	.0002
.0053	-.0038	.0085	.0001	-.0001	.0002
.0830	.0222	.0446	.0021	.0006	.0011
.1660	.0494	.0820	.0042	.0013	.0021
.2490	.0756	.1179	.0063	.0019	.0030
.3320	.1009	.1524	.0084	.0026	.0039
.4149	.1253	.1853	.0105	.0032	.0047
.4979	.1487	.2170	.0126	.0038	.0055
.5809	.1712	.2472	.0148	.0043	.0063
.6639	.1927	.2761	.0169	.0049	.0070
.7469	.2135	.3039	.0190	.0054	.0077
.8299	.2334	.3306	.0211	.0059	.0084
.9129	.2521	.3549	.0232	.0064	.0090
.9959	.2686	.3761	.0253	.0068	.0096
1.0789	.2822	.3934	.0274	.0072	.0100
1.1619	.2930	.4063	.0295	.0074	.0103
1.2449	.3008	.4166	.0316	.0076	.0106
1.3278	.3057	.4226	.0337	.0078	.0107
1.4108	.3078	.4249	.0358	.0078	.0108
1.4938	.3069	.4235	.0379	.0078	.0108
1.5768	.3031	.4183	.0401	.0077	.0106
1.6598	.2962	.4094	.0422	.0075	.0104
1.7428	.2863	.3965	.0443	.0073	.0101
1.8258	.2733	.3797	.0464	.0069	.0096
1.9088	.2571	.3588	.0485	.0065	.0091
1.9918	.2376	.3335	.0506	.0060	.0085
2.0748	.2147	.3037	.0527	.0055	.0077
2.1578	.1882	.2691	.0548	.0048	.0068
2.2407	.1580	.2293	.0569	.0040	.0058
2.3237	.1238	.1839	.0590	.0031	.0047
2.4067	.0853	.1322	.0611	.0022	.0034
2.4897	.0422	.0734	.0632	.0011	.0019
2.5683	-.0030	.0101	.0652	.0001	.0003
2.5727	-.0056	.0066	.0653	.0001	.0002

RADIUS (INCHES)	= 10.0	RADIUS (METERS)	= .2540
CHORD (INCHES)	= 2.573	CHORD (METERS)	= .0653
ZCCG (INCHES)	= 1.3442	ZCCG (METERS)	= .0341
YCCG (INCHES)	= .2803	YCCG (METERS)	= .0071
RLE (INCHES)	= .0057	RLE (METERS)	= .000145
RTE (INCHES)	= .0054	RTE (METERS)	= .000137
X-AREA (SQ. IN.)	= .2128	X-AREA (SQ.METERS)	= .000137
GAMMA-CHORD(DEG.)	= 20.51	GAMMA-CHORD(RAD.)	= .3580

INCHES			METERS		
ZC	YP	YS	ZC	YP	YS
-.0000	-.0058	.0061	.0000	-.0001	.0002
.0055	-.0040	.0086	.0001	-.0001	.0002
.0829	.0202	.0440	.0021	.0005	.0011
.1658	.0455	.0804	.0042	.0012	.0020
.2487	.0699	.1151	.0063	.0018	.0029
.3316	.0931	.1482	.0084	.0024	.0038
.4145	.1155	.1798	.0105	.0029	.0046
.4974	.1369	.2099	.0126	.0035	.0053
.5803	.1574	.2385	.0147	.0040	.0061
.6632	.1770	.2657	.0168	.0045	.0067
.7460	.1957	.2916	.0189	.0050	.0074
.8289	.2134	.3162	.0211	.0054	.0080
.9118	.2303	.3387	.0232	.0058	.0086
.9947	.2461	.3585	.0253	.0062	.0091
1.0776	.2575	.3747	.0274	.0065	.0095
1.1605	.2673	.3874	.0295	.0068	.0098
1.2434	.2745	.3965	.0316	.0070	.0101
1.3263	.2791	.4020	.0337	.0071	.0102
1.4092	.2810	.4040	.0358	.0071	.0103
1.4921	.2804	.4027	.0379	.0071	.0102
1.5750	.2770	.3977	.0400	.0070	.0101
1.6579	.2708	.3892	.0421	.0069	.0099
1.7408	.2619	.3769	.0442	.0067	.0096
1.8237	.2501	.3608	.0463	.0064	.0092
1.9066	.2353	.3408	.0484	.0060	.0087
1.9895	.2175	.3167	.0505	.0055	.0080
2.0724	.1965	.2883	.0526	.0050	.0073
2.1552	.1722	.2553	.0547	.0044	.0065
2.2381	.1445	.2174	.0568	.0037	.0055
2.3210	.1130	.1742	.0590	.0029	.0044
2.4039	.0776	.1251	.0611	.0020	.0032
2.4868	.0381	.0695	.0632	.0010	.0018
2.5650	-.0032	.0103	.0652	-.0001	.0003
2.5697	-.0057	.0067	.0653	-.0001	.0002

RADIUS (INCHES)	= 10.5	RADIUS (METERS)	= .2667
CHORD (INCHES)	= 2.570	CHORD (METERS)	= .0653
ZCCG (INCHES)	= 1.3345	ZCCG (METERS)	= .0339
YCCG (INCHES)	= .2627	YCCG (METERS)	= .0067
RLE (INCHES)	= .0059	RLE (METERS)	= .000150
RTE (INCHES)	= .0057	RTE (METERS)	= .000144
X-AREA (SQ. IN.)	= .2228	X-AREA (SQ.METERS)	= .000144
GAMMA-CHORD(DEG.)	= 18.73	GAMMA-CHORD(RAD.)	= .3269

See Figure 109 for Parameter Definitions

Stator Airfoil Coordinates on Manufacturing Surfaces

INCHES			METERS			INCHES			METERS		
ZC	YP	YS	ZC	YP	YS	ZC	YP	YS	ZC	YP	YS
-.0000	-.0060	.0064	.0000	-.0002	.0002	-.0000	-.0062	.0066	.0000	-.0002	.0002
.0058	-.0043	.0090	.0001	-.0001	.0002	.0062	-.0046	.0092	.0002	-.0001	.0002
.0831	.0180	.0429	.0021	.0005	.0011	.0833	.0155	.0419	.0021	.0004	.0011
.1663	.0411	.0778	.0042	.0010	.0020	.1666	.0364	.0755	.0042	.0009	.0019
.2495	.0631	.1110	.0063	.0016	.0028	.2499	.0562	.1073	.0063	.0014	.0027
.3326	.0841	.1425	.0084	.0021	.0036	.3332	.0751	.1373	.0085	.0019	.0035
.4158	.1042	.1723	.0106	.0026	.0044	.4165	.0929	.1656	.0106	.0024	.0042
.4989	.1233	.2005	.0127	.0031	.0051	.4998	.1099	.1920	.0127	.0028	.0049
.5821	.1414	.2271	.0148	.0036	.0058	.5831	.1258	.2169	.0148	.0032	.0055
.6652	.1585	.2522	.0169	.0040	.0064	.6664	.1407	.2401	.0169	.0036	.0061
.7484	.1746	.2758	.0190	.0044	.0070	.7497	.1547	.2617	.0190	.0039	.0066
.8315	.1899	.2978	.0211	.0048	.0076	.8330	.1678	.2816	.0212	.0043	.0072
.9147	.2043	.3183	.0232	.0052	.0081	.9163	.1800	.3001	.0233	.0046	.0076
.9979	.2169	.3362	.0253	.0055	.0085	.9996	.1907	.3160	.0254	.0048	.0080
1.0810	.2274	.3508	.0275	.0058	.0089	1.0829	.1995	.3290	.0275	.0051	.0084
1.1642	.2357	.3621	.0296	.0060	.0092	1.1662	.2064	.3389	.0296	.0052	.0086
1.2473	.2417	.3701	.0317	.0061	.0094	1.2495	.2112	.3457	.0317	.0054	.0088
1.3305	.2453	.3748	.0338	.0062	.0095	1.3328	.2139	.3495	.0339	.0054	.0089
1.4136	.2468	.3763	.0359	.0063	.0096	1.4161	.2147	.3502	.0360	.0055	.0089
1.4968	.2458	.3745	.0380	.0062	.0095	1.4994	.2134	.3479	.0381	.0054	.0088
1.5799	.2425	.3694	.0401	.0062	.0094	1.5827	.2100	.3425	.0402	.0053	.0087
1.6631	.2367	.3610	.0422	.0060	.0092	1.6660	.2045	.3340	.0423	.0052	.0085
1.7462	.2286	.3491	.0444	.0058	.0089	1.7493	.1969	.3224	.0444	.0050	.0082
1.8294	.2179	.3337	.0465	.0055	.0085	1.8326	.1871	.3075	.0465	.0048	.0078
1.9126	.2046	.3147	.0486	.0052	.0080	1.9159	.1752	.2893	.0487	.0044	.0073
1.9957	.1888	.2919	.0507	.0048	.0074	1.9992	.1610	.2677	.0508	.0041	.0068
2.0789	.1701	.2652	.0528	.0043	.0067	2.0825	.1445	.2426	.0529	.0037	.0062
2.1620	.1487	.2344	.0549	.0038	.0060	2.1658	.1257	.2138	.0550	.0032	.0054
2.2452	.1243	.1991	.0570	.0032	.0051	2.2491	.1045	.1811	.0571	.0027	.0046
2.3283	.0968	.1592	.0591	.0025	.0040	2.3324	.0808	.1444	.0592	.0021	.0037
2.4115	.0660	.1141	.0613	.0017	.0029	2.4157	.0545	.1032	.0614	.0014	.0026
2.4946	.0318	.0634	.0634	.0008	.0016	2.4990	.0255	.0574	.0635	.0006	.0015
2.5727	-.0035	.0103	.0653	-.0001	.0003	2.5767	-.0038	.0103	.0654	-.0001	.0003
2.5778	-.0058	.0069	.0655	-.0001	.0002	2.5824	-.0060	.0069	.0656	-.0002	.0002

RADIUS (INCHES) = 11.0	RADIUS (METERS) = .2794	RADIUS (INCHES) = 11.5	RADIUS (METERS) = .2921
CHORD (INCHES) = 2.578	CHORD (METERS) = .0655	CHORD (INCHES) = 2.532	CHORD (METERS) = .0656
ZCCG (INCHES) = 1.3337	ZCCG (METERS) = .0339	ZCCG (INCHES) = 1.3290	ZCCG (METERS) = .0338
YCCG (INCHES) = .2397	YCCG (METERS) = .0061	YCCG (INCHES) = .2176	YCCG (METERS) = .0055
RLE (INCHES) = .0062	RLE (METERS) = .000158	RLE (INCHES) = .0065	RLE (METERS) = .000166
RTE (INCHES) = .0060	RTE (METERS) = .000152	RTE (INCHES) = .0063	RTE (METERS) = .000161
X-AREA (SQ. IN.) = .2342	X-AREA(SQ.METERS) = .000151	X-AREA (SQ. IN.) = .2453	X-AREA(SQ.METERS) = .000158
GAMMA-CHORD(DEG.)= 18.15	GAMMA-CHORD(RAD.)= .3168	GAMMA-CHORD(DEG.)= 17.64	GAMMA-CHORD(RAD.)= .3079

See Figure 109 for Parameter Definitions

Stator Airfoil Coordinates on Manufacturing Surfaces

INCHES			METERS		
ZC	YP	YS	ZC	YP	YS
-.0000	-.0064	.0069	.0000	-.0002	.0002
.0064	-.0048	.0095	.0002	-.0001	.0002
.0834	.0137	.0416	.0021	.0003	.0011
.1668	.0331	.0747	.0042	.0008	.0019
.2503	.0515	.1053	.0064	.0013	.0027
.3337	.0688	.1350	.0085	.0017	.0034
.4171	.0851	.1623	.0106	.0022	.0041
.5005	.1005	.1877	.0127	.0026	.0048
.5840	.1148	.2113	.0148	.0029	.0054
.6674	.1282	.2332	.0170	.0033	.0059
.7508	.1405	.2534	.0191	.0036	.0064
.8342	.1519	.2718	.0212	.0039	.0069
.9177	.1625	.2886	.0233	.0041	.0073
1.0011	.1716	.3030	.0254	.0044	.0077
1.0845	.1792	.3147	.0275	.0046	.0080
1.1679	.1849	.3234	.0297	.0047	.0082
1.2514	.1889	.3293	.0318	.0048	.0084
1.3348	.1910	.3324	.0339	.0049	.0084
1.4182	.1913	.3326	.0360	.0049	.0084
1.5016	.1898	.3299	.0381	.0048	.0084
1.5851	.1865	.3242	.0403	.0047	.0082
1.6685	.1813	.3157	.0424	.0046	.0080
1.7519	.1742	.3043	.0445	.0044	.0077
1.8353	.1653	.2898	.0466	.0042	.0074
1.9187	.1544	.2722	.0487	.0039	.0069
2.0022	.1416	.2514	.0509	.0036	.0064
2.0856	.1268	.2274	.0530	.0032	.0058
2.1690	.1099	.2001	.0551	.0028	.0051
2.2524	.0910	.1693	.0572	.0023	.0043
2.3359	.0700	.1347	.0593	.0018	.0034
2.4193	.0468	.0963	.0615	.0012	.0024
2.5027	.0213	.0537	.0636	.0005	.0014
2.5801	-.0041	.0104	.0655	-.0001	.0003
2.5861	-.0061	.0071	.0657	-.0002	.0002

RADIUS (INCHES) = 12.0		RADIUS (METERS) = .3048	
CHORD (INCHES) = 2.586		CHORD (METERS) = .0657	
ZCCG (INCHES) = 1.3237		ZCCG (METERS) = .0336	
YCCG (INCHES) = .2025		YCCG (METERS) = .0051	
RLE (INCHES) = .0068		RLE (METERS) = .000173	
RTE (INCHES) = .0066		RTE (METERS) = .000168	
X-AREA (SQ. IN.) = .2562		X-AREA (SQ.METERS) = .000165	
GAMMA-CHORD(DEG.) = 16.73		GAMMA-CHORD(RAD.) = .2919	

INCHES			METERS		
ZC	YP	YS	ZC	YP	YS
-.0000	-.0065	.0071	.0000	-.0002	.0002
.0066	-.0049	.0099	.0002	-.0001	.0003
.0834	.0132	.0424	.0021	.0003	.0011
.1669	.0320	.0758	.0042	.0008	.0019
.2503	.0496	.1069	.0064	.0013	.0027
.3337	.0661	.1359	.0085	.0017	.0035
.4172	.0815	.1627	.0106	.0021	.0041
.5006	.0957	.1875	.0127	.0024	.0048
.5840	.1089	.2103	.0148	.0028	.0053
.6675	.1210	.2312	.0170	.0031	.0059
.7509	.1319	.2502	.0191	.0034	.0064
.8343	.1418	.2672	.0212	.0036	.0068
.9178	.1507	.2825	.0233	.0038	.0072
1.0012	.1583	.2954	.0254	.0040	.0075
1.0846	.1645	.3059	.0276	.0042	.0078
1.1681	.1691	.3136	.0297	.0043	.0080
1.2515	.1722	.3186	.0318	.0044	.0081
1.3349	.1736	.3209	.0339	.0044	.0082
1.4184	.1733	.3205	.0360	.0044	.0081
1.5018	.1715	.3173	.0381	.0044	.0081
1.5853	.1680	.3114	.0403	.0043	.0079
1.6687	.1629	.3027	.0424	.0041	.0077
1.7521	.1562	.2913	.0445	.0040	.0074
1.8356	.1478	.2769	.0466	.0038	.0070
1.9190	.1377	.2597	.0487	.0035	.0066
2.0024	.1259	.2396	.0509	.0032	.0061
2.0859	.1125	.2164	.0530	.0029	.0055
2.1693	.0972	.1902	.0551	.0025	.0048
2.2527	.0801	.1606	.0572	.0020	.0041
2.3362	.0613	.1276	.0593	.0016	.0032
2.4196	.0406	.0912	.0615	.0010	.0023
2.5030	.0180	.0510	.0636	.0005	.0013
2.5802	-.0044	.0105	.0655	-.0001	.0003
2.5865	-.0062	.0071	.0657	-.0002	.0002

RADIUS (INCHES) = 12.5		RADIUS (METERS) = .3175	
CHORD (INCHES) = 2.536		CHORD (METERS) = .0657	
ZCCG (INCHES) = 1.3198		ZCCG (METERS) = .0335	
YCCG (INCHES) = .1920		YCCG (METERS) = .0049	
RLE (INCHES) = .0070		RLE (METERS) = .000178	
RTE (INCHES) = .0068		RTE (METERS) = .000174	
X-AREA (SQ. IN.) = .2668		X-AREA (SQ.METERS) = .000172	
GAMMA-CHORD(DEG.) = 15.43		GAMMA-CHORD(RAD.) = .2692	

See Figure 109 for Parameter Definitions

Stator Airfoil Coordinates on Manufacturing Surfaces

INCHES			METERS			INCHES			METERS		
ZC	YP	YS	ZC	YP	YS	ZC	YP	YS	ZC	YP	YS
-.0000	-.0066	.0073	.0000	-.0002	.0002	-.0000	-.0068	.0077	.0000	-.0002	.0002
.0068	-.0050	.0103	.0002	-.0001	.0003	.0071	-.0051	.0109	.0002	-.0001	.0003
.0833	.0129	.0438	.0021	.0003	.0011	.0832	.0130	.0458	.0021	.0003	.0012
.1666	.0314	.0780	.0042	.0008	.0020	.1663	.0317	.0815	.0042	.0008	.0021
.2499	.0487	.1098	.0063	.0012	.0028	.2495	.0490	.1144	.0063	.0012	.0029
.3332	.0648	.1390	.0085	.0016	.0035	.3327	.0651	.1446	.0085	.0017	.0037
.4165	.0796	.1660	.0106	.0020	.0042	.4159	.0799	.1721	.0106	.0020	.0044
.4998	.0932	.1906	.0127	.0024	.0048	.4990	.0933	.1971	.0127	.0024	.0050
.5831	.1057	.2131	.0148	.0027	.0054	.5822	.1054	.2197	.0148	.0027	.0056
.6664	.1169	.2334	.0169	.0030	.0059	.6654	.1162	.2399	.0169	.0030	.0061
.7497	.1269	.2515	.0190	.0032	.0064	.7486	.1257	.2577	.0190	.0032	.0065
.8330	.1358	.2676	.0212	.0034	.0068	.8317	.1340	.2732	.0211	.0034	.0069
.9163	.1435	.2817	.0233	.0036	.0072	.9149	.1411	.2864	.0232	.0036	.0073
.9996	.1500	.2935	.0254	.0038	.0075	.9981	.1469	.2974	.0254	.0037	.0076
1.0829	.1552	.3029	.0275	.0039	.0077	1.0813	.1514	.3060	.0275	.0038	.0078
1.1662	.1589	.3098	.0296	.0040	.0079	1.1644	.1544	.3121	.0296	.0039	.0079
1.2495	.1612	.3140	.0317	.0041	.0080	1.2476	.1562	.3156	.0317	.0040	.0080
1.3328	.1620	.3156	.0339	.0041	.0080	1.3308	.1565	.3165	.0338	.0040	.0080
1.4161	.1613	.3145	.0360	.0041	.0080	1.4140	.1555	.3150	.0359	.0040	.0080
1.4994	.1592	.3109	.0381	.0040	.0079	1.4971	.1531	.3108	.0380	.0039	.0079
1.5827	.1556	.3047	.0402	.0040	.0077	1.5803	.1494	.3041	.0401	.0038	.0077
1.6660	.1506	.2958	.0423	.0038	.0075	1.6635	.1442	.2949	.0423	.0037	.0075
1.7493	.1440	.2842	.0444	.0037	.0072	1.7467	.1376	.2830	.0444	.0035	.0072
1.8326	.1359	.2699	.0465	.0035	.0069	1.8298	.1297	.2684	.0465	.0033	.0068
1.9159	.1263	.2528	.0487	.0032	.0064	1.9130	.1203	.2512	.0486	.0031	.0064
1.9992	.1153	.2329	.0508	.0029	.0059	1.9962	.1095	.2312	.0507	.0028	.0059
2.0825	.1027	.2102	.0529	.0026	.0053	2.0793	.0973	.2084	.0528	.0025	.0053
2.1658	.0885	.1845	.0550	.0022	.0047	2.1625	.0836	.1827	.0549	.0021	.0046
2.2491	.0727	.1557	.0571	.0018	.0040	2.2457	.0685	.1541	.0570	.0017	.0039
2.3324	.0554	.1237	.0592	.0014	.0031	2.3289	.0519	.1224	.0592	.0013	.0031
2.4157	.0364	.0884	.0614	.0009	.0022	2.4120	.0338	.0874	.0613	.0009	.0022
2.4990	.0157	.0495	.0635	.0004	.0013	2.4952	.0142	.0491	.0634	.0004	.0012
2.5757	-.0047	.0106	.0654	-.0001	.0003	2.5714	-.0050	.0110	.0653	-.0001	.0003
2.5823	-.0064	.0073	.0656	-.0002	.0002	2.5784	-.0067	.0076	.0655	-.0002	.0002

RADIUS (INCHES) = 13.0	RADIUS (METERS) = .3302	RADIUS (INCHES) = 13.5	RADIUS (METERS) = .3429
CHORD (INCHES) = 2.582	CHORD (METERS) = .0656	CHORD (INCHES) = 2.578	CHORD (METERS) = .0655
ZCCG (INCHES) = 1.3122	ZCCG (METERS) = .0333	ZCCG (INCHES) = 1.3035	ZCCG (METERS) = .0331
YCCG (INCHES) = .1861	YCCG (METERS) = .0047	YCCG (INCHES) = .1850	YCCG (METERS) = .0047
RLE (INCHES) = .0072	RLE (METERS) = .000184	RLE (INCHES) = .0075	RLE (METERS) = .000192
RTE (INCHES) = .0071	RTE (METERS) = .000180	RTE (INCHES) = .0075	RTE (METERS) = .000190
X-AREA (SQ. IN.) = .2783	X-AREA(SQ.METERS) = .000180	X-AREA (SQ. IN.) = .2906	X-AREA(SQ.METERS) = .000187
GAMMA-CHORD(DEG.)= 14.03	GAMMA-CHORD(RAD.)= .2448	GAMMA-CHORD(DEG.)= 12.65	GAMMA-CHORD(RAD.)= .2208

See Figure 109 for Parameter Definitions

Stator Airfoil Coordinates on Manufacturing Surfaces

INCHES			METERS			INCHES			METERS		
ZC	YP	YS	ZC	YP	YS	ZC	YP	YS	ZC	YP	YS
-.0000	-.0071	.0080	.0000	-.0002	.0002	-.0000	-.0073	.0084	.0000	-.0002	.0002
.0073	-.0053	.0115	.0002	-.0001	.0003	.0076	-.0054	.0123	.0002	-.0001	.0003
.0830	.0135	.0484	.0021	.0003	.0012	.0828	.0143	.0510	.0021	.0004	.0013
.1660	.0329	.0959	.0042	.0008	.0022	.1656	.0346	.0906	.0042	.0009	.0023
.2490	.0508	.1204	.0063	.0013	.0031	.2485	.0534	.1268	.0063	.0014	.0032
.3320	.0673	.1519	.0084	.0017	.0039	.3313	.0706	.1598	.0084	.0018	.0041
.4150	.0824	.1805	.0105	.0021	.0046	.4141	.0863	.1897	.0105	.0022	.0048
.4981	.0960	.2064	.0127	.0024	.0052	.4969	.1005	.2166	.0126	.0026	.0055
.5811	.1083	.2295	.0148	.0028	.0058	.5797	.1133	.2406	.0147	.0029	.0061
.6641	.1191	.2500	.0169	.0030	.0064	.6626	.1246	.2618	.0168	.0032	.0066
.7471	.1286	.2680	.0190	.0033	.0068	.7454	.1344	.2802	.0189	.0034	.0071
.8301	.1368	.2835	.0211	.0035	.0072	.8282	.1428	.2959	.0210	.0036	.0075
.9131	.1436	.2965	.0232	.0036	.0075	.9110	.1497	.3090	.0231	.0038	.0078
.9961	.1491	.3070	.0253	.0038	.0078	.9939	.1552	.3196	.0252	.0039	.0081
1.0791	.1532	.3151	.0274	.0039	.0080	1.0767	.1593	.3276	.0273	.0040	.0083
1.1621	.1559	.3207	.0295	.0040	.0081	1.1595	.1620	.3330	.0295	.0041	.0085
1.2451	.1573	.3238	.0316	.0040	.0082	1.2423	.1632	.3358	.0316	.0041	.0085
1.3282	.1573	.3242	.0337	.0040	.0082	1.3251	.1630	.3360	.0337	.0041	.0085
1.4112	.1559	.3222	.0358	.0040	.0082	1.4080	.1615	.3336	.0358	.0041	.0085
1.4942	.1532	.3176	.0380	.0039	.0081	1.4908	.1586	.3286	.0379	.0040	.0083
1.5772	.1492	.3104	.0401	.0038	.0079	1.5736	.1543	.3210	.0400	.0039	.0082
1.6602	.1438	.3007	.0422	.0037	.0076	1.6564	.1487	.3108	.0421	.0038	.0079
1.7432	.1371	.2883	.0443	.0035	.0073	1.7393	.1416	.2978	.0442	.0036	.0076
1.8262	.1290	.2732	.0464	.0033	.0069	1.8221	.1331	.2823	.0463	.0034	.0072
1.9092	.1195	.2555	.0485	.0030	.0065	1.9049	.1233	.2639	.0484	.0031	.0067
1.9922	.1086	.2350	.0506	.0028	.0060	1.9877	.1120	.2427	.0505	.0028	.0062
2.0752	.0963	.2117	.0527	.0024	.0054	2.0705	.0993	.2186	.0526	.0025	.0056
2.1583	.0827	.1856	.0548	.0021	.0047	2.1534	.0852	.1917	.0547	.0022	.0049
2.2413	.0676	.1565	.0569	.0017	.0040	2.2362	.0696	.1616	.0568	.0018	.0041
2.3243	.0511	.1242	.0590	.0013	.0032	2.3190	.0527	.1283	.0589	.0013	.0033
2.4073	.0332	.0888	.0611	.0008	.0023	2.4018	.0342	.0918	.0610	.0009	.0023
2.4903	.0137	.0499	.0633	.0003	.0013	2.4847	.0141	.0517	.0631	.0004	.0013
2.5661	-.0051	.0116	.0652	-.0001	.0003	2.5600	-.0052	.0122	.0650	-.0001	.0003
2.5733	-.0069	.0079	.0654	-.0002	.0002	2.5675	-.0072	.0083	.0652	-.0002	.0002

RADIUS (INCHES) = 14.0	RADIUS (METERS) = .3556	RADIUS (INCHES) = 14.5	RADIUS (METERS) = .3683
CHORD (INCHES) = 2.573	CHORD (METERS) = .0654	CHORD (INCHES) = 2.567	CHORD (METERS) = .0652
ZCCG (INCHES) = 1.2962	ZCCG (METERS) = .0329	ZCCG (INCHES) = 1.2898	ZCCG (METERS) = .0328
YCCG (INCHES) = .1887	YCCG (METERS) = .0048	YCCG (INCHES) = .1958	YCCG (METERS) = .0050
RLE (INCHES) = .0078	RLE (METERS) = .000198	RLE (INCHES) = .0062	RLE (METERS) = .000208
RTE (INCHES) = .0078	RTE (METERS) = .000198	RTE (INCHES) = .0081	RTE (METERS) = .000205
X-AREA (SQ. IN.) = .3037	X-AREA (SQ.METERS) = .000196	X-AREA (SQ. IN.) = .3151	X-AREA (SQ.METERS) = .000203
GAMMA-CHORD(DEG.) = 11.41	GAMMA-CHORD(RAD.) = .1992	GAMMA-CHORD(DEG.) = 10.89	GAMMA-CHORD(RAD.) = .1901

See Figure 109 for Parameter Definitions

Stator Airfoil Coordinates on Manufacturing Surfaces

INCHES			METERS		
ZC	YP	YS	ZC	YP	YS
-.0000	-.0076	.0088	.0000	-.0002	.0002
.0078	-.0055	.0130	.0002	-.0001	.0003
.0826	.0148	.0532	.0021	.0004	.0014
.1652	.0359	.0945	.0042	.0009	.0024
.2478	.0554	.1322	.0063	.0014	.0034
.3305	.0733	.1665	.0084	.0019	.0042
.4131	.0896	.1975	.0105	.0023	.0050
.4957	.1043	.2252	.0126	.0026	.0057
.5783	.1175	.2500	.0147	.0030	.0064
.6609	.1293	.2719	.0168	.0033	.0069
.7435	.1395	.2908	.0189	.0035	.0074
.8261	.1482	.3069	.0210	.0038	.0078
.9088	.1554	.3203	.0231	.0039	.0081
.9914	.1612	.3310	.0252	.0041	.0084
1.0740	.1655	.3391	.0273	.0042	.0086
1.1566	.1683	.3445	.0294	.0043	.0088
1.2392	.1696	.3472	.0315	.0043	.0088
1.3218	.1695	.3473	.0336	.0043	.0088
1.4044	.1680	.3448	.0357	.0043	.0088
1.4871	.1650	.3395	.0378	.0042	.0086
1.5697	.1605	.3316	.0399	.0041	.0084
1.6523	.1547	.3210	.0420	.0039	.0082
1.7349	.1474	.3077	.0441	.0037	.0078
1.8175	.1385	.2915	.0462	.0035	.0074
1.9001	.1284	.2726	.0483	.0033	.0069
1.9827	.1166	.2507	.0504	.0030	.0064
2.0654	.1034	.2258	.0525	.0026	.0057
2.1480	.0887	.1980	.0546	.0023	.0050
2.2306	.0725	.1670	.0567	.0018	.0042
2.3132	.0549	.1325	.0588	.0014	.0034
2.3958	.0356	.0948	.0609	.0009	.0024
2.4784	.0147	.0534	.0630	.0004	.0014
2.5533	-.0054	.0128	.0649	-.0001	.0003
2.5610	-.0075	.0086	.0651	-.0002	.0002

INCHES			METERS		
ZC	YP	YS	ZC	YP	YS
-.0000	-.0078	.0091	.0000	-.0002	.0002
.0080	-.0056	.0136	.0002	-.0001	.0003
.0822	.0154	.0554	.0021	.0004	.0014
.1645	.0371	.0984	.0042	.0009	.0025
.2467	.0572	.1375	.0063	.0015	.0035
.3290	.0756	.1731	.0084	.0019	.0044
.4112	.0925	.2052	.0104	.0023	.0052
.4935	.1078	.2339	.0125	.0027	.0059
.5757	.1215	.2596	.0146	.0031	.0066
.6580	.1337	.2821	.0167	.0034	.0072
.7403	.1444	.3018	.0188	.0037	.0077
.8225	.1536	.3185	.0209	.0039	.0081
.9048	.1612	.3323	.0230	.0041	.0084
.9870	.1673	.3434	.0251	.0042	.0087
1.0693	.1719	.3517	.0272	.0044	.0089
1.1515	.1750	.3573	.0292	.0044	.0091
1.2338	.1767	.3601	.0313	.0045	.0091
1.3160	.1768	.3603	.0334	.0045	.0092
1.3983	.1755	.3577	.0355	.0045	.0091
1.4805	.1726	.3524	.0376	.0044	.0090
1.5628	.1682	.3443	.0397	.0043	.0087
1.6450	.1622	.3334	.0418	.0041	.0085
1.7273	.1547	.3196	.0439	.0039	.0081
1.8095	.1457	.3031	.0460	.0037	.0077
1.8918	.1350	.2835	.0481	.0034	.0072
1.9740	.1228	.2610	.0501	.0031	.0066
2.0563	.1091	.2353	.0522	.0028	.0060
2.1385	.0938	.2064	.0543	.0024	.0052
2.2208	.0767	.1741	.0564	.0019	.0044
2.3030	.0581	.1385	.0585	.0015	.0035
2.3853	.0378	.0991	.0606	.0010	.0025
2.4675	.0158	.0559	.0627	.0004	.0014
2.5419	-.0054	.0136	.0646	-.0001	.0003
2.5498	-.0077	.0091	.0648	-.0002	.0002

RADIUS (INCHES) = 15.0	RADIUS (METERS) = .3810	RADIUS (INCHES) = 15.5	RADIUS (METERS) = .3937
CHORD (INCHES) = 2.561	CHORD (METERS) = .0650	CHORD (INCHES) = 2.550	CHORD (METERS) = .0648
ZCCG (INCHES) = 1.2832	ZCCG (METERS) = .0326	ZCCG (INCHES) = 1.2749	ZCCG (METERS) = .0324
YCCG (INCHES) = .2028	YCCG (METERS) = .0052	YCCG (INCHES) = .2108	YCCG (METERS) = .0054
RLE (INCHES) = .0085	RLE (METERS) = .000217	RLE (INCHES) = .0088	RLE (METERS) = .000223
RTE (INCHES) = .0084	RTE (METERS) = .000212	RTE (INCHES) = .0087	RTE (METERS) = .000220
X-AREA (SQ. IN.) = .3243	X-AREA(SQ.METERS) = .000209	X-AREA (SQ. IN.) = .3341	X-AREA(SQ.METERS)= .000216
GAMMA-CHORD(DEG.)= 11.26	GAMMA-CHORD(RAD.)= .1965	GAMMA-CHORD(DEG.)= 12.23	GAMMA-CHORD(RAD.)= .2134

See Figure 109 for Parameter Definitions

Stator Airfoil Coordinates on Manufacturing Surfaces

INCHES			METERS		
ZC	YP	YS	ZC	YP	YS
-.0000	-.0084	.0096	.0000	-.0002	.0002
.0085	-.0059	.0147	.0002	-.0001	.0004
.0819	.0156	.0580	.0021	.0004	.0015
.1638	.0378	.1022	.0042	.0010	.0026
.2456	.0583	.1425	.0062	.0015	.0036
.3275	.0772	.1791	.0083	.0020	.0045
.4094	.0945	.2122	.0104	.0024	.0054
.4913	.1104	.2418	.0125	.0028	.0061
.5732	.1246	.2682	.0146	.0032	.0068
.6551	.1373	.2913	.0166	.0035	.0074
.7370	.1483	.3117	.0187	.0038	.0079
.8188	.1579	.3290	.0208	.0040	.0084
.9007	.1660	.3433	.0229	.0042	.0087
.9826	.1724	.3547	.0250	.0044	.0090
1.0645	.1773	.3632	.0270	.0045	.0092
1.1464	.1808	.3690	.0291	.0046	.0094
1.2283	.1828	.3721	.0312	.0046	.0095
1.3102	.1833	.3723	.0333	.0047	.0095
1.3920	.1822	.3698	.0354	.0046	.0094
1.4739	.1796	.3645	.0374	.0046	.0093
1.5558	.1752	.3563	.0395	.0045	.0091
1.6377	.1691	.3451	.0416	.0043	.0088
1.7196	.1615	.3311	.0437	.0041	.0084
1.8015	.1523	.3142	.0458	.0039	.0080
1.8833	.1413	.2941	.0478	.0036	.0075
1.9652	.1286	.2710	.0499	.0033	.0069
2.0471	.1144	.2446	.0520	.0029	.0062
2.1290	.0986	.2146	.0541	.0025	.0055
2.2109	.0807	.1812	.0562	.0021	.0046
2.2928	.0611	.1444	.0582	.0016	.0037
2.3747	.0400	.1035	.0603	.0010	.0026
2.4565	.0169	.0585	.0624	.0004	.0015
2.5303	-.0054	.0144	.0643	-.0001	.0004
2.5384	-.0079	.0098	.0645	-.0002	.0002

RADIUS (INCHES)	= 16.0	RADIUS (METERS)	= .4064
CHORD (INCHES)	= 2.538	CHORD (METERS)	= .0645
ZCCG (INCHES)	= 1.2666	ZCCG (METERS)	= .0322
YCCG (INCHES)	= .2179	YCCG (METERS)	= .0055
RLE (INCHES)	= .0093	RLE (METERS)	= .000237
RTE (INCHES)	= .0090	RTE (METERS)	= .000228
X-AREA (SQ. IN.)	= .3440	X-AREA (SQ. METERS)	= .000222
GAMMA-CHORD (DEG.)	= 13.24	GAMMA-CHORD (RAD.)	= .2311

See Figure 109 for Parameter Definitions

APPENDIX D

BLADE ELEMENT AND OVERALL PERFORMANCE IDENTIFICATION OF HEADINGS AND DESIGN PERFORMANCE

ROTOR

Identification of Blade-Element and Overall Performance Table Headings

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5 10 15 30 50 70 85 90 95	$2r_5$	$2r_6$	V_5	V_6	V_{m5}	V_{m6}	$V_{\theta 5}$	$V_{\theta 6}$	β_5	β_6	β'_5	β'_6	V'_5	V'_6	$V'_{\theta 5}$	$V'_{\theta 6}$	U_5	U_6

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5 10 15 30 50 70 85 90 95	i_{s5}	i_{m5}	δ_6°	$\Delta\beta$	ϕ	$\bar{\omega}_{sh}$	D	$\bar{\omega}$	$\frac{\bar{\omega}\cos\beta'_6}{2\sigma}$ $\downarrow$ $\frac{(\bar{\omega}-\bar{\omega}_{sh})\cos\beta'_6}{2\sigma}$		$\frac{P_6}{P_5}$	η_p	η_{ad}	η_p	M_5	M_6	M'_5	M'_6

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	NC1/A1 LBM/SEC SQFT
$\frac{T_6}{T_5}$	$\frac{P_6}{P_5}$	η_{ad}	η_p	$\frac{W\sqrt{\theta}}{\delta A_{an}}$

STATOR

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5 10 15 30 50 70 85 90 95	$2r_{11}$	$2r_{12}$	V_{11}	V_{12}	V_{m11}	V_{m12}	$V_{\theta 11}$	$V_{\theta 12}$	β_{11}	β_{12}	β'_{11}	β'_{12}	V'_{11}	V'_{12}	$V'_{\theta 11}$	$V'_{\theta 12}$	U_5	U_6

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5 10 15 30 50 70 85 90 95	i_{s11}	i_{m11}	δ_{12}°	$\Delta\beta$	ϕ	$\bar{\omega}_{sh}$	D	$\bar{\omega}$	$\frac{\bar{\omega}\cos\beta_{12}}{2\sigma}$ $\downarrow$ $\frac{(\bar{\omega}-\bar{\omega}_{sh})\cos\beta_{12}}{2\sigma}$		$\frac{P_{12}}{P_{11}}$	η_p	η_{ad}	η_p	M_{11}	M_{12}	M'_{11}	M'_{12}

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
$\frac{N}{\sqrt{\theta}}$	$\frac{W\sqrt{\theta}}{\delta}$	$\frac{T_{12}}{T_5}$	$\frac{P_{12}}{P_5}$	η_{ad}	η_p

ROTOR

Aerodynamic Design - Blade Element and Over-all Performance

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	14.065	573.9	1075.8	573.9	614.7	.0	882.8	.00	55.15	36.61	-30.70	715.0	715.1	-426.5	365.2	426.5	517.7
10	14.306	16.853	587.0	1041.1	587.0	618.4	.0	837.5	.00	53.55	38.14	-25.45	746.4	685.1	-461.0	294.4	461.0	543.1
15	15.361	17.635	599.1	1000.2	599.1	623.7	.0	781.9	.00	51.41	39.56	-18.89	777.2	659.5	-495.0	213.6	495.0	568.3
30	18.427	19.988	629.3	902.0	629.3	616.8	.0	658.1	.00	46.85	43.33	-1.29	865.3	617.2	-593.8	14.0	593.8	644.1
50	22.273	23.137	655.3	811.7	655.3	585.9	.0	561.8	.00	43.80	47.60	17.42	971.9	614.1	-717.7	-183.8	717.7	745.6
70	25.934	26.288	667.7	750.4	667.7	577.2	.0	479.6	.00	39.72	51.38	32.49	1069.7	684.3	-835.7	-367.6	835.7	847.1
85	28.573	28.641	668.6	721.0	668.5	555.2	.0	459.9	.00	39.69	54.02	39.83	1137.8	723.0	-920.8	-463.0	920.8	923.0
90	29.403	29.417	667.3	700.9	667.3	523.7	.0	465.8	.00	41.66	54.84	42.64	1158.9	711.9	-947.5	-482.2	947.5	948.0
95	30.215	30.208	665.9	675.5	665.9	487.3	.0	467.8	.00	43.84	55.63	46.06	1179.6	702.2	-973.7	-505.6	973.7	973.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-4.54	2.38	6.02	67.32	70.94	.0002	.2839	.1932	.0349	.0348	1.5412	.9025	.8965	.0848	.5277	.9824	.6571	.6531
10	-3.61	3.02	5.28	63.59	65.84	.0007	.3504	.1318	.0263	.0262	1.5574	.9286	.9240	.6545	.5405	.9454	.6870	.6221
15	-2.90	3.34	7.77	58.45	62.87	.0019	.4023	.0933	.0206	.0202	1.5542	.9448	.9413	.8178	.5524	.9036	.7164	.5959
30	-2.03	3.63	11.94	44.63	52.94	.0061	.4953	.0385	.0102	.0086	1.5431	.9714	.9696	.9464	.5823	.8054	.8007	.5511
50	-1.09	3.90	12.38	30.19	38.67	.0083	.5427	.0916	.0117	.0094	1.5288	.9612	.9588	.9499	.6083	.7167	.9028	.5422
70	.08	4.28	12.31	18.89	26.93	.0105	.5075	.0247	.0068	.0039	1.5173	.9715	.9698	.9686	.6205	.6589	.9951	.6009
85	.58	4.29	9.65	14.19	19.60	.0156	.5052	.0652	.0174	.0132	1.5110	.9229	.9183	.9213	.6211	.6293	1.0584	.6310
90	.65	4.14	10.30	12.20	18.35	.0176	.5280	.1140	.0297	.0251	1.4949	.8663	.8586	.8686	.6200	.6089	1.0778	.6184
95	.53	3.88	11.85	9.57	17.52	.0200	.5476	.1589	.0397	.0347	1.4746	.8130	.8026	.8230	.6185	.5841	1.0966	.6071

TO/TO INLET	PO/PO INLET	EFF-AD INLET	EFF-P INLET	WC1/A1 LBM/SEC SQFT
		%	%	
1.1371	1.5230	93.19	93.58	41.17

STATOR

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	966.8	683.9	556.9	683.9	790.1	.0	54.82	.00	-20.84	42.38	596.2	925.9	211.6	-624.1	578.5	629.1
10	18.665	19.908	960.2	683.2	591.7	683.2	756.2	.0	51.96	.00	-14.67	43.20	611.8	937.2	154.7	-641.5	601.5	641.5
15	19.362	20.485	942.0	668.0	617.1	668.0	711.6	.0	49.07	.00	-8.09	44.66	623.5	939.1	87.7	-660.1	623.9	660.1
30	21.439	22.268	900.8	666.8	659.9	666.8	613.2	.0	42.90	.00	6.71	47.10	664.5	979.6	-77.7	-717.6	690.9	717.6
50	24.186	24.672	861.7	662.5	673.5	662.5	537.5	.0	38.59	.00	19.75	50.19	715.7	1034.9	-241.9	-795.1	779.4	795.1
70	26.928	27.186	824.0	651.4	678.2	651.4	468.1	.0	34.61	.00	30.51	53.37	787.2	1091.7	-399.7	-876.1	867.7	876.1
85	28.974	29.120	803.7	641.2	663.3	641.2	453.9	.0	34.39	.00	35.88	55.65	818.6	1136.6	-479.8	-938.4	933.7	938.9
90	29.643	29.759	788.0	622.6	638.6	622.6	461.7	.0	35.87	.00	37.70	57.01	807.1	1143.4	-493.5	-959.0	955.2	959.0
95	30.316	30.402	767.3	596.8	609.5	596.8	466.2	.0	37.41	.00	39.96	58.65	795.2	1147.2	-510.8	-979.7	976.9	979.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-.68	1.85	16.41	54.82	69.41	.0069	.4681	.1058	.0236	.0221	.9590	.0000	.0000	.8376	.8666	.5917	.5384	.8011
10	-.39	2.35	16.26	51.96	65.89	.0056	.4644	.1265	.0292	.0279	.9515	.0000	.0000	.8037	.8587	.5914	.5499	.8112
15	-.68	2.22	15.69	49.07	62.54	.0040	.4661	.1375	.0328	.0319	.9488	.0000	.0000	.7846	.8419	.5782	.5591	.8129
30	-1.08	2.54	11.52	42.90	51.88	.0022	.4352	.0829	.0218	.0212	.9712	.0000	.0000	.8557	.8039	.5788	.5937	.8503
50	-1.92	2.71	8.01	38.59	43.89	.0041	.4135	.0376	.0111	.0099	.9879	.0000	.0000	.9280	.7651	.5753	.6369	.8986
70	-4.02	1.62	9.05	34.61	42.03	.0020	.3956	.0354	.0116	.0110	.9894	.0000	.0000	.9240	.7297	.5661	.6981	.9487
85	-4.95	1.43	11.18	34.39	44.14	.0030	.4024	.0522	.0185	.0175	.9851	.0000	.0000	.8807	.7082	.5552	.7213	.9840
90	-4.44	2.12	11.41	35.87	45.16	.0052	.4227	.0616	.0224	.0205	.9831	.0000	.0000	.8632	.6913	.5368	.7081	.9857
95	-3.93	2.81	11.61	37.41	46.23	.0080	.4489	.0708	.0264	.0234	.9816	.0000	.0000	.8486	.6701	.5122	.6942	.9846

NCORR INLET	WCORR INLET	TO/TO INLET	PO/PO INLET	EFF-AD INLET	EFF-P INLET
RPM	LBM/SEC			%	%
7385.	179.66	1.1371	1.4919	88.27	88.91

APPENDIX E

BLADE ELEMENT AND OVERALL PERFORMANCE OPTIMIZATION TESTS

(FOR TABLE HEADINGS SEE APPENDIX D)

Table X	Nominal Stator
Table XI	Five-Degree Open Stator
Table XII	Five-Degree Closed Stator
Table XIII	Ten-Degree Closed Stator

Table X Performance with Uniform Inlet Flow, Optimization Test, Nominal Stator

100% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VU-1 FT/SEC	VU-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VU'-1 FT/SEC	VU'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	597.1	1150.5	597.1	756.3	.0	867.0	.00	49.96	35.55	-24.77	734.0	832.9	-426.9	348.0	426.8	518.0
10	14.336	16.863	611.2	1129.6	611.2	754.3	.0	839.6	.00	49.06	37.04	-21.42	765.7	810.4	-451.3	296.1	461.3	543.4
15	15.361	17.635	623.9	1090.8	623.9	738.7	.0	802.5	.00	47.36	38.44	-17.54	796.6	775.3	-495.3	233.6	495.3	566.7
30	18.427	19.983	654.4	971.9	654.4	715.1	.0	658.1	.00	42.61	42.24	-1.06	883.9	716.2	-594.2	13.6	594.2	644.5
50	22.273	23.137	676.7	844.2	676.7	666.6	.0	517.9	.00	37.82	46.70	18.87	986.8	705.9	-718.2	-223.2	718.2	746.1
70	25.934	26.288	682.9	750.2	682.9	621.2	.0	420.5	.00	34.09	50.76	34.49	1079.7	754.2	-836.3	-427.2	836.3	847.7
85	28.573	28.641	681.3	714.4	680.3	595.5	.0	394.5	.00	33.53	53.55	41.62	1145.1	796.8	-921.4	-529.1	921.4	923.6
90	29.403	29.417	676.5	687.4	676.5	565.0	.0	394.2	.00	35.01	54.41	44.56	1165.9	790.3	-948.1	-554.3	948.1	948.6
95	30.215	30.208	675.5	659.9	676.5	526.2	.0	398.1	.00	37.11	55.23	47.58	1186.1	780.2	-974.3	-575.0	974.3	974.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-5.54	1.35	11.68	60.32	70.59	.0001	.1372	.1591	.0323	.0303	1.5405	.9154	.9112	2.0315	.3514	1.0869	.6785	.7724
10	-4.63	1.95	9.21	58.47	65.78	.0004	.2040	.0728	.0150	.0149	1.5836	.9608	.9582	-1.2510	.5660	1.0409	.7108	.7475
15	-3.97	2.22	8.09	55.98	62.88	.0013	.2783	.0652	.0145	.0143	1.5844	.9619	.9594	.7165	.5789	.9990	.7416	.7705
30	-3.10	2.51	12.19	43.30	52.99	.0047	.3941	.0479	.0126	.0114	1.5374	.9630	.9608	.9127	.5091	.8771	.8273	.8463
50	-1.92	3.01	13.92	27.83	38.79	.0069	.4432	.0717	.0201	.0182	1.4604	.9263	.9223	.8981	.6323	.7524	.8255	.8291
70	-.48	3.68	14.32	16.27	25.94	.0095	.4294	.0912	.0245	.0220	1.3974	.8826	.8769	.8742	.6355	.6538	1.0107	.8674
85	.13	3.77	11.44	11.93	19.60	.0151	.4241	.1247	.0324	.0284	1.3777	.8277	.8197	.8288	.6328	.6288	1.0630	.7714
90	.21	3.59	12.25	9.85	18.38	.0171	.4418	.1693	.0427	.0383	1.3542	.7640	.7536	.7766	.6310	.6025	1.0872	.6926
95	.12	3.46	13.37	7.64	17.52	.0197	.4632	.2173	.0528	.0480	1.3313	.6967	.6842	.7248	.6291	.5755	1.1048	.5824

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1266	1.4523	88.91	89.47	41.31

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VU-1 FT/SEC	VU-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VU'-1 FT/SEC	VU'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	1041.3	769.7	693.3	764.8	775.5	-86.2	48.21	-6.44	-15.85	42.91	720.7	1044.1	196.8	-713.7	578.8	624.5
10	18.665	19.908	1055.2	804.7	734.1	802.7	759.0	-56.5	45.92	-4.03	-12.01	41.03	750.6	1064.3	156.1	-698.4	601.9	641.9
15	19.382	20.485	1047.3	825.1	749.6	823.6	733.9	-48.4	44.27	-3.35	-8.09	40.72	757.5	1036.8	126.5	-708.9	624.3	650.6
30	21.439	22.268	993.9	787.8	781.7	786.4	513.6	-46.4	38.12	-3.33	5.67	44.19	786.2	1096.8	-77.7	-764.5	691.3	718.0
50	24.186	24.672	916.2	747.1	770.5	746.6	495.6	-29.4	32.74	-2.16	20.23	47.81	822.0	1112.1	-284.3	-824.0	779.9	795.6
70	25.928	27.185	845.8	698.8	739.6	697.9	410.4	-36.2	29.03	-2.97	31.75	52.59	870.3	1149.1	-457.9	-912.8	868.3	876.6
85	28.974	29.120	816.6	676.9	717.6	676.0	389.6	-35.5	28.50	-3.00	37.20	55.25	901.0	1186.1	-544.6	-974.5	934.3	939.0
90	29.643	29.759	793.6	646.0	690.7	645.5	390.7	-24.8	29.50	-2.18	39.30	56.75	892.5	1177.3	-565.2	-984.4	955.9	959.6
95	30.316	30.402	770.2	600.6	660.4	600.5	396.4	-10.2	30.97	-.97	41.35	58.77	879.7	1158.4	-581.2	-990.6	977.6	980.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-7.14	-4.66	10.48	54.65	59.93	.0581	.4404	.1971	.0440	.0310	.9137	.0000	.0000	.6677	.9477	.6729	.6591	.9128
10	-6.23	-3.60	12.49	49.95	66.19	.0463	.4115	.1826	.0423	.0315	.9183	.0000	.0000	.6738	.9593	.7058	.6837	.9332
15	-5.40	-2.50	12.61	47.63	62.83	.0377	.3860	.1378	.0330	.0240	.9391	.0000	.0000	.7367	.9484	.7257	.6895	.9558
30	-6.01	-2.32	8.34	41.49	52.08	.0143	.3793	.1206	.0317	.0275	.9507	.0000	.0000	.7657	.8942	.6932	.7138	.9652
50	-7.83	-3.18	5.98	34.92	44.04	.0040	.3519	.0575	.0170	.0158	.9793	.0000	.0000	.8771	.8212	.6580	.7417	.9795
70	-9.71	-4.05	6.13	32.00	42.16	.0040	.3469	.0345	.0113	.0100	.9891	.0000	.0000	.9135	.7563	.6148	.7806	1.0110
85	-10.85	-4.44	8.17	31.51	44.14	.0093	.3555	.0526	.0187	.0155	.9844	.0000	.0000	.9556	.7248	.5934	.8016	1.0398
90	-10.75	-4.17	9.23	31.68	45.16	.0134	.3762	.0765	.0278	.0229	.9765	.0000	.0000	.8000	.7013	.5637	.7930	1.0273
95	-10.45	-3.69	10.64	31.95	46.23	.0216	.4137	.1309	.0488	.0407	.9651	.0000	.0000	.7127	.6792	.5208	.7766	1.0045

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7390.	183.23	1.1266	1.4057	80.76	81.56

Table X Performance with Uniform Inlet Flow, Optimization Test, Nominal Stator

100% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	577.9	1074.9	577.9	658.7	.0	849.4	.00	52.21	36.46	-26.69	718.5	737.3	-427.0	331.1	427.0	518.3
10	14.306	16.853	591.2	1042.0	591.2	666.0	.0	801.4	.00	50.27	37.98	-21.15	750.0	714.2	-461.6	257.7	461.6	543.7
15	15.361	17.635	603.3	1006.3	603.3	662.1	.0	757.8	.00	48.86	39.40	-15.91	780.8	688.6	-495.6	188.9	495.6	567.0
30	18.427	19.988	633.1	911.0	633.1	647.6	.0	640.7	.00	44.69	43.20	.37	868.5	647.9	-594.5	-4.2	594.5	644.9
50	22.273	23.137	657.5	819.2	657.5	613.9	.0	542.5	.00	41.46	47.54	18.37	974.0	647.2	-718.6	-204.0	718.6	746.5
70	25.934	26.288	667.7	754.9	667.7	590.7	.0	470.0	.00	38.51	51.41	32.62	1070.5	701.4	-836.7	-378.1	836.7	848.1
85	28.573	28.641	668.1	726.6	668.1	568.7	.0	452.2	.00	38.49	54.07	39.69	1138.5	739.0	-921.9	-471.9	921.9	924.1
90	29.403	29.417	667.2	710.2	667.2	542.9	.0	457.8	.00	40.14	54.88	42.14	1159.8	732.3	-948.7	-491.3	948.7	949.1
95	30.215	30.208	665.9	689.4	665.9	514.0	.0	459.4	.00	41.79	55.66	45.07	1180.6	727.8	-974.8	-515.2	974.8	974.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-4.65	2.25	9.76	63.15	70.67	.0002	.2461	.1494	.0280	.0280	1.5326	.9224	.9177	-.0180	.5322	.9842	.6621	.6751
10	-3.73	2.88	9.48	59.13	65.75	.0006	.3033	.0795	.0164	.0163	1.5499	.9560	.9532	.7389	.5465	.9494	.6928	.6507
15	-3.03	3.18	10.73	55.31	62.88	.0019	.3603	.0526	.0118	.0114	1.5520	.9686	.9666	.8810	.5575	.9120	.7225	.6241
30	-2.16	3.48	13.61	42.82	52.96	.0059	.4566	.0136	.0036	.0020	1.5396	.9898	.9892	.9783	.5868	.8159	.8067	.5802
50	-1.14	3.83	13.34	29.17	38.69	.0082	.5037	.0266	.0075	.0052	1.5169	.9742	.9726	.9653	.6107	.7256	.9073	.5732
70	.12	4.31	12.44	18.79	26.93	.0106	.4890	.0383	.0105	.0076	1.4962	.9558	.9533	.9511	.6205	.6640	.9970	.6170
85	.62	4.28	9.51	14.38	19.60	.0159	.4890	.0792	.0212	.0169	1.4900	.9050	.8996	.9020	.6208	.6352	1.0589	.6461
90	.69	4.18	9.80	12.74	18.35	.0178	.5083	.1221	.0320	.0273	1.4779	.8545	.8464	.8547	.6198	.6182	1.0782	.6374
95	.56	3.92	10.85	10.60	17.52	.0203	.5238	.1607	.0409	.0357	1.4621	.8079	.7975	.8143	.6186	.5976	1.0973	.6309

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1338	1.5106	93.50	93.86	40.21

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	969.7	645.5	601.9	643.5	760.2	-49.0	51.63	-4.35	-16.75	46.32	628.7	931.8	181.1	-673.9	679.2	624.9
10	18.665	19.908	966.6	649.2	640.8	648.9	723.7	-17.1	48.47	-1.51	-10.73	45.46	652.3	925.2	121.5	-659.4	602.2	642.3
15	19.362	20.485	956.2	676.9	661.8	676.7	690.1	-15.2	46.20	-1.29	-5.65	44.97	665.2	956.7	65.4	-676.2	624.7	660.9
30	21.439	22.268	921.7	679.7	702.0	679.3	597.3	-22.3	40.39	-1.88	7.65	47.48	708.5	1005.1	-94.4	-740.8	691.7	718.4
50	24.186	24.672	879.1	666.1	709.6	666.1	519.0	-1.4	36.18	-.12	20.21	50.12	756.3	1039.1	-201.4	-797.4	780.3	796.0
70	26.928	27.186	835.5	646.3	698.4	646.0	458.6	-20.2	33.29	-1.79	30.43	54.25	809.9	1105.6	-410.2	-897.3	868.8	877.1
85	28.974	29.120	814.4	639.8	681.0	639.8	446.6	-3.6	33.26	-.32	35.64	55.85	837.9	1139.7	-488.2	-943.1	934.8	939.5
90	29.643	29.759	801.1	618.1	660.0	618.1	454.0	-2.2	34.52	-.22	37.28	57.29	829.5	1143.9	-502.4	-962.4	956.4	960.1
95	30.316	30.402	784.1	574.6	636.6	574.3	457.7	-18.8	35.71	-1.88	39.27	60.12	822.3	1153.0	-520.5	-999.7	978.1	980.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-3.81	-1.33	12.57	55.98	69.93	.0767	.5154	.1650	.0369	.0198	.9355	.0000	.0000	.7685	.8719	.5578	.5679	.8052
10	-3.75	-1.14	15.02	49.99	66.17	.0525	.5008	.1762	.0409	.0287	.9314	.0000	.0000	.7477	.8692	.5615	.5876	.8003
15	-3.48	-.62	14.66	47.49	62.80	.0381	.4642	.1213	.0291	.0200	.9536	.0000	.0000	.8119	.8590	.5875	.5986	.8303
30	-3.61	.04	9.86	42.28	52.10	.0166	.4365	.0609	.0160	.0117	.9780	.0000	.0000	.8980	.8255	.5917	.6368	.8750
50	-4.32	.32	7.89	36.30	43.88	.0098	.4154	.0268	.0079	.0050	.9910	.0000	.0000	.9531	.7832	.5798	.6766	.9044
70	-5.35	.30	7.28	35.08	42.08	.0157	.4143	.0296	.0097	.0046	.9909	.0000	.0000	.9380	.7415	.5619	.7203	.9613
85	-6.06	.34	10.86	33.58	44.14	.0302	.4103	.0414	.0147	.0040	.9879	.0000	.0000	.9022	.7181	.5543	.7393	.9873
90	-5.77	.80	11.18	34.74	45.15	.0427	.4353	.0675	.0246	.0090	.9809	.0000	.0000	.8537	.7031	.5331	.7288	.9866
95	-5.74	1.02	9.73	37.59	46.23	.0578	.4934	.1293	.0482	.0267	.9650	.0000	.0000	.7609	.6863	.4928	.7209	.9808

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7394.	180.07	1.1338	1.4783	88.32	88.94

Table X Performance with Uniform Inlet Flow, Optimization Test, Nominal Stator

Rotor

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VU-1 FT/SEC	VU-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VU'-1 FT/SEC	VU'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.055	523.6	1023.5	523.6	572.2	.0	845.0	.00	55.83	39.39	-29.85	674.6	660.2	-425.3	329.7	425.3	516.3
10	14.306	16.653	535.2	985.4	535.2	597.6	.0	783.5	.00	52.66	40.66	-22.03	705.6	644.8	-459.8	241.9	459.8	541.6
15	15.361	17.635	545.7	952.9	545.7	589.2	.0	748.8	.00	51.81	42.13	-17.17	735.3	616.7	-483.7	182.1	483.7	566.3
30	18.427	19.988	571.5	868.6	570.5	575.8	.0	650.3	.00	48.48	46.35	-.79	822.4	576.0	-532.2	8.0	532.2	642.4
50	22.273	23.137	590.9	783.1	590.9	547.9	.0	559.6	.00	45.60	50.46	18.56	928.2	578.0	-715.8	-184.0	715.8	741.6
70	25.934	26.288	600.4	742.8	600.4	541.4	.0	508.5	.00	43.20	54.23	31.35	1027.2	637.4	-833.5	-336.4	833.5	844.8
85	28.573	28.641	600.7	725.0	600.7	520.1	.0	505.0	.00	44.15	56.81	38.62	1097.3	665.7	-918.3	-415.5	918.3	920.5
90	29.403	29.417	593.6	713.8	593.6	492.6	.0	515.6	.00	46.37	57.60	41.04	1119.1	653.1	-944.9	-428.8	944.9	945.4
95	30.215	30.208	588.4	696.1	588.4	461.6	.0	521.0	.00	48.46	58.36	44.25	1140.6	644.5	-971.0	-449.8	971.0	970.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P P01	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-2.04	4.87	6.74	68.95	70.83	.0009	.3100	.1575	.0287	.0285	1.5294	.9260	.9215	.4435	.9796	.9263	.6181	.5880
10	-1.06	5.55	8.63	62.69	65.79	.0021	.3518	.0643	.0131	.0127	1.5413	.9676	.9656	.8419	.4911	.8910	.6480	.5831
15	-.30	5.91	9.50	59.30	62.91	.0044	.4160	.0488	.0109	.0099	1.5454	.9734	.9718	.9094	.5014	.8572	.6771	.5546
30	.70	6.35	12.45	48.85	52.97	.0107	.5167	.0163	.0043	.0015	1.5460	.9890	.9883	.9771	.5254	.7728	.7598	.5124
50	1.77	6.75	13.52	31.90	38.68	.0137	.5594	.0286	.0080	.0042	1.5341	.9751	.9735	.9651	.5448	.6893	.8574	.5238
70	2.94	7.13	11.67	22.38	26.93	.0164	.5420	.0353	.0096	.0053	1.5468	.9645	.9622	.9568	.5539	.6493	.9489	.5572
85	3.36	7.02	8.44	18.19	19.50	.0203	.5533	.0385	.0240	.0185	1.5569	.9092	.9034	.8966	.5540	.6232	1.0133	.5778
90	3.41	6.90	8.70	16.56	18.35	.0219	.5797	.1361	.0363	.0304	1.5619	.8619	.8532	.8472	.5530	.6166	1.0332	.5842
95	3.26	6.61	10.04	14.10	17.52	.0242	.5995	.1765	.0456	.0393	1.5429	.8208	.8095	.8078	.5518	.5997	1.0526	.5843

TO/TO INLET	P0/P0 INLET	EFF-AD INLET %	EFF-P INLET %	WCI/A1 LBM/SEC SQFT
1.1408	1.5439	93.83	94.16	37.82

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VU-1 FT/SEC	VU-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VU'-1 FT/SEC	VU'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	814.3	589.3	513.3	575.6	756.3	-126.1	55.85	-12.35	-19.28	52.44	543.8	944.3	179.4	-748.6	576.9	622.4
10	18.665	19.508	903.6	577.2	560.0	587.5	708.9	-105.6	51.69	-10.54	-11.05	52.72	570.9	936.8	109.1	-745.4	599.9	639.8
15	19.362	20.465	992.6	589.9	575.8	586.9	682.1	-56.1	49.83	-5.43	-5.94	50.59	579.3	924.7	59.8	-714.4	622.3	658.3
30	21.433	22.268	953.3	609.9	613.9	609.9	606.5	1.6	44.65	.15	7.65	49.53	619.5	939.0	-82.5	-714.0	699.0	715.6
50	24.186	24.672	824.0	591.8	626.5	531.8	535.3	-5.9	40.51	-.57	21.11	53.46	671.8	994.2	-242.0	-798.8	777.3	792.9
70	25.928	27.185	805.1	598.5	635.7	598.4	495.6	-11.9	37.94	-1.14	33.18	55.95	735.4	1068.8	-369.8	-885.6	865.4	873.7
85	28.974	29.120	798.1	603.5	623.9	603.5	497.7	-7.3	38.58	-.69	34.79	57.39	759.7	1119.7	-433.5	-943.1	931.2	935.9
90	29.643	29.759	793.5	593.8	602.6	593.8	511.7	-4.5	40.34	-.44	36.23	58.42	746.7	1128.3	-443.9	-950.9	952.7	956.4
95	30.316	30.402	776.7	552.0	577.8	551.9	519.0	-12.0	41.93	-1.25	38.24	60.34	735.6	1132.7	-455.3	-989.1	974.3	977.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P P01	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	.38	2.87	4.57	68.20	69.93	.1147	.5660	.1374	.0301	.0056	.9513	.0000	.0000	.6137	.9141	.5069	.4875	.8123
10	-.59	2.51	5.00	62.23	65.17	.0711	.5653	.1675	.0382	.0220	.9416	.0000	.0000	.7714	.8065	.4968	.5111	.8084
15	.09	2.92	10.48	55.31	62.81	.0566	.5326	.1432	.0342	.0206	.9511	.0000	.0000	.7937	.7966	.5083	.5160	.7968
30	.67	4.25	11.83	44.50	52.04	.0317	.4741	.0665	.0175	.0091	.9786	.0000	.0000	.8922	.7683	.5270	.5493	.8114
50	.04	4.62	7.54	41.08	43.99	.0225	.4738	.0460	.0133	.0067	.9866	.0000	.0000	.9241	.7298	.5107	.5932	.8579
70	-.64	4.96	7.91	39.03	42.02	.0386	.4638	.0495	.0163	.0036	.9859	.0000	.0000	.9110	.7104	.5158	.6467	.9211
85	-.76	5.61	10.47	39.27	44.12	.0726	.4681	.0661	.0235	-.0023	.9915	.0000	.0000	.8745	.6988	.5177	.6649	.9626
90	.02	6.58	10.97	40.78	45.15	.1021	.4899	.0870	.0317	-.0055	.9763	.0000	.0000	.8357	.6891	.5045	.6508	.9632
95	.57	7.31	10.36	43.18	46.23	.1359	.5438	.1452	.0541	.0035	.9619	.0000	.0000	.7486	.6779	.4687	.6383	.9616

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	P0/P0 INLET	EFF-AD INLET %	EFF-P INLET %
7365.	167.73	1.1408	1.5374	88.33	88.98

Table X Performance with Uniform Inlet Flow, Optimization Test, Nominal Stator

Rotor

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	501.4	997.5	501.4	541.2	.0	838.0	.00	57.14	40.32	-30.70	657.6	629.5	-425.6	321.4	425.6	516.5
10	14.336	16.853	512.4	962.2	512.4	573.2	.0	772.8	.00	53.43	41.31	-21.34	688.6	618.1	-460.0	231.0	460.0	541.9
15	15.361	17.635	522.4	930.8	522.4	569.5	.0	736.2	.00	52.28	43.39	-16.54	718.9	594.2	-493.9	159.2	493.9	567.0
30	18.427	19.938	545.7	852.5	545.7	548.3	.0	652.8	.00	49.97	47.35	-1.05	805.5	548.6	-592.5	10.1	592.5	642.7
50	22.273	23.137	564.4	774.0	564.4	529.0	.0	565.0	.00	46.89	51.76	18.67	911.8	559.6	-716.2	-178.9	716.2	743.9
70	25.934	26.288	572.1	731.0	572.1	519.4	.0	514.3	.00	44.72	55.54	32.50	1011.3	616.0	-833.9	-330.9	833.9	845.2
85	28.573	28.641	571.2	714.1	571.2	491.9	.0	517.5	.00	46.45	58.13	39.35	1081.8	636.2	-918.7	-403.4	918.7	922.9
90	29.403	29.417	569.9	703.8	569.9	464.3	.0	528.8	.00	48.72	56.92	41.34	1103.9	624.2	-945.4	-417.0	945.4	945.9
95	30.215	30.238	563.5	686.9	563.5	431.5	.0	534.4	.00	51.09	59.67	45.35	1125.6	614.0	-971.5	-436.9	971.5	971.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO1	PO2/ TOTAL	EFF-P TOTAL	EFF-AD STATIC	M-1	M-2	M'-1	M'-2	
5	-.81	5.10	5.92	71.01	70.84	.0017	.3363	.1573	.0234	.0281	1.5267	.9299	.9246	.5393	.4583	.9025	.6214	.5636
10	.18	5.80	8.72	63.85	65.80	.0033	.3711	.0542	.0111	.0104	1.5371	.9736	.9720	.8784	.4693	.8677	.6312	.5574
15	.96	7.17	10.12	59.93	62.92	.0064	.4295	.0314	.0070	.0056	1.5420	.9837	.9827	.9439	.4781	.8355	.6605	.5334
30	1.99	7.63	12.19	48.40	52.38	.0139	.5415	.0177	.0047	.0010	1.5483	.9884	.9877	.9763	.5014	.7566	.7421	.4669
50	3.37	8.35	13.64	33.08	38.59	.0172	.5746	.0200	.0056	.0033	1.5459	.9831	.9821	.9754	.5191	.6801	.8409	.4906
70	4.25	8.44	12.32	23.05	26.93	.0200	.5579	.0264	.0038	.0042	1.5552	.9656	.9635	.9572	.5263	.6377	.9329	.5374
85	4.68	8.34	9.17	18.77	19.60	.0241	.5783	.1015	.0273	.0203	1.5665	.9015	.8941	.8841	.5253	.6180	.9969	.5526
90	4.72	8.20	9.61	16.93	18.36	.0253	.6041	.1473	.0388	.0321	1.5632	.8568	.8476	.8377	.5240	.6063	1.0168	.5377
95	4.56	7.91	11.14	14.31	17.52	.0274	.6256	.1886	.0478	.0408	1.5536	.8166	.8048	.7984	.5227	.5890	1.0361	.5256

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/A1 LBM/SEC SQFT
1.1422	1.5538	93.93	94.29	36.66

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	891.0	566.7	480.7	548.8	750.1	-141.2	57.34	-14.43	-19.79	54.31	511.2	940.6	172.9	-764.0	577.2	622.7
10	18.665	19.908	873.7	550.7	530.6	536.8	700.1	-123.1	52.34	-12.92	-10.72	54.38	540.5	933.1	99.9	-763.2	600.1	640.1
15	19.352	20.485	867.5	558.5	550.1	552.7	670.7	-77.6	50.64	-8.01	-5.01	53.10	552.4	920.7	48.2	-738.3	622.6	658.7
30	21.439	22.268	841.7	564.1	581.5	583.9	608.6	-2.5	46.30	-.25	7.90	50.80	587.2	925.9	-80.8	-718.5	683.3	716.0
50	24.186	24.672	803.7	580.2	601.7	580.2	540.3	-3.9	41.92	-.38	21.51	53.35	647.1	936.1	-237.4	-797.2	777.7	793.3
70	26.928	27.186	787.6	580.6	608.2	580.4	500.4	-12.6	39.44	-1.24	30.99	56.79	709.6	1059.8	-365.4	-886.7	865.8	874.1
85	28.974	29.120	781.7	585.7	591.6	585.6	519.4	-8.4	40.73	-.82	35.52	58.21	726.8	1111.5	-422.2	-944.7	931.6	935.3
90	29.643	29.759	774.1	572.3	570.3	572.3	523.4	.7	42.54	.07	37.00	59.10	714.1	1114.4	-429.8	-956.2	953.1	956.9
95	30.316	30.402	750.9	543.1	543.7	543.0	532.3	-5.5	44.39	-.58	39.14	61.08	701.0	1123.1	-442.5	-983.1	974.8	977.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO1	PO2/ TOTAL	EFF-P TOTAL	EFF-AD STATIC	M-1	M-2	M'-1	M'-2	
5	1.88	4.37	2.53	71.77	69.93	.1315	.5827	.1469	.0319	.0033	.9501	.0001	.0001	.8018	.7310	.4868	.4569	.8031
10	.57	3.17	3.62	65.75	66.17	.0781	.5856	.1818	.0411	.0232	.9395	.0000	.0000	.7536	.7823	.4734	.4820	.8020
15	.89	3.73	7.95	58.65	62.80	.0605	.5582	.1668	.0396	.0252	.9457	.0000	.0001	.7639	.7730	.4805	.4905	.7921
30	2.26	5.82	11.42	46.56	52.04	.0402	.4934	.0815	.0241	.0135	.9717	.0000	.0000	.8555	.7479	.5034	.5179	.7980
50	1.48	6.04	7.77	42.30	44.04	.0289	.4783	.0568	.0168	.0082	.9837	.0000	.0000	.9037	.7150	.4999	.5685	.8485
70	.87	6.45	7.80	40.68	42.02	.0482	.4763	.0650	.0214	.0055	.9822	.0000	.0000	.8847	.6925	.4993	.6213	.9114
85	1.37	7.73	10.33	41.55	44.11	.0958	.4843	.0347	.0301	-.0038	.9774	.0001	.0001	.8455	.6813	.5008	.6339	.9527
90	2.18	8.73	11.47	42.48	45.15	.1325	.5059	.1106	.0403	-.0080	.9711	.0000	.0000	.7993	.6728	.4872	.6209	.9487
95	3.06	9.80	11.03	44.98	46.23	.1785	.5494	.1522	.0567	-.0098	.9616	.0000	.0000	.7334	.6580	.4599	.6058	.9510

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7369.	162.12	1.1422	1.5088	87.70	88.39

Table XI Performance with Uniform Inlet Flow, Optimization Test, 5° Open Stator

Rotor

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	598.0	1191.5	598.0	751.4	.0	924.7	.00	50.90	35.50	-28.43	734.6	854.5	-426.6	406.9	426.6	517.8
10	19.306	16.853	612.1	1155.7	612.1	767.6	.0	864.0	.00	48.38	36.99	-22.67	786.4	832.0	-461.1	320.8	461.1	543.2
15	15.361	17.635	625.0	1111.9	625.0	764.7	.0	807.3	.00	46.55	38.38	-17.33	797.4	801.3	-495.1	238.8	495.1	568.4
30	18.427	19.988	655.8	990.2	655.8	723.2	.0	676.2	.00	43.06	42.16	-2.50	884.8	724.8	-594.0	31.9	594.0	644.3
50	22.273	23.137	679.1	860.1	679.1	681.0	.0	525.2	.00	37.62	46.59	17.92	988.2	717.0	-717.9	-220.5	717.9	745.8
70	25.934	26.288	685.8	761.4	685.8	632.7	.0	423.6	.00	33.80	50.63	33.79	1081.3	761.9	-835.9	-423.8	835.9	847.4
85	28.573	28.641	683.4	718.0	683.4	601.3	.0	392.3	.00	33.13	53.43	41.44	1146.8	802.3	-921.0	-530.9	921.0	923.2
90	29.403	29.417	681.6	693.2	681.6	572.7	.0	390.5	.00	34.29	54.28	44.24	1167.4	799.5	-947.8	-557.7	947.8	948.2
95	30.215	30.208	679.8	669.7	679.8	542.4	.0	392.8	.00	35.91	55.09	46.96	1187.7	794.8	-973.9	-580.9	973.9	973.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-5.60	1.30	8.08	63.93	70.74	.0001	.1266	.2066	.0381	.0381	1.5662	.8963	.8895	1.8751	.5519	1.1084	.6783	.7949
10	-4.70	1.90	7.96	59.66	65.76	.0004	.1841	.1025	.0209	.0208	1.5911	.9453	.9416	3.3791	.5664	1.0692	.7103	.7697
15	-4.03	2.17	9.31	55.71	62.88	.0013	.2478	.0737	.0164	.0162	1.5847	.9572	.9543	.5085	.5797	1.0219	.7415	.7365
30	-3.18	2.44	10.75	44.66	52.99	.0046	.3906	.0901	.0238	.0226	1.5319	.9313	.9271	.8305	.6105	.8945	.8278	.6548
50	-2.04	2.89	12.96	28.67	38.78	.0068	.4350	.0922	.0260	.0241	1.4554	.9060	.9009	.8655	.6327	.7675	.9271	.6398
70	-.61	3.55	13.61	16.84	26.94	.0092	.4240	.1110	.0301	.0276	1.3871	.8574	.8507	.8445	.6385	.6744	1.0126	.6748
85	-.01	3.64	11.26	11.98	19.60	.0150	.4194	.1450	.0377	.0338	1.3594	.7975	.7885	.7986	.6358	.6325	1.0707	.7067
90	.08	3.56	11.93	10.03	18.38	.0169	.4335	.1830	.0464	.0421	1.3382	.7411	.7302	.7540	.6342	.6082	1.0887	.7015
95	-.02	3.32	12.75	8.12	17.52	.0194	.4499	.2231	.0549	.0501	1.3193	.6835	.6709	.7103	.6329	.5851	1.1065	.6944

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1280	1.4455	86.74	87.40	41.38

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	1083.0	796.7	698.6	788.2	827.6	-115.7	49.83	-8.35	-19.61	43.19	741.7	1081.1	248.9	-740.0	578.6	624.3
10	18.665	19.908	1083.4	812.9	751.9	800.7	779.9	-99.8	46.05	-7.06	-13.34	42.59	772.8	1095.7	178.3	-741.5	601.6	641.7
15	19.362	20.485	1069.9	826.4	777.5	821.7	735.0	-88.3	43.39	-6.13	-8.12	42.33	785.6	1111.6	110.9	-748.6	624.1	660.3
30	21.439	22.268	1017.1	816.4	798.5	810.5	629.9	-98.0	38.26	-6.89	4.37	45.18	801.5	1150.1	-61.2	-815.8	691.1	717.6
50	24.186	24.672	936.8	750.8	790.7	745.3	502.1	-90.7	32.40	-6.94	19.32	49.92	838.8	1158.0	-277.4	-886.0	779.6	795.3
70	26.928	27.186	859.0	703.9	753.0	697.2	413.5	-97.3	28.77	-7.95	31.10	54.39	879.7	1197.6	-454.5	-973.6	868.0	876.3
85	28.974	29.120	822.1	676.4	725.0	671.0	387.7	-85.3	28.14	-7.24	37.00	56.76	907.8	1224.3	-546.2	-1023.9	933.9	938.6
90	29.643	29.759	800.7	645.2	700.9	640.4	387.3	-78.1	28.93	-6.95	39.04	58.31	902.3	1217.3	-568.2	-1037.3	955.5	957.2
95	30.316	30.402	781.0	601.6	676.0	597.1	391.2	-73.4	30.06	-7.01	40.92	60.46	894.6	1210.9	-586.0	-1053.4	977.2	980.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-.72	1.77	13.56	58.18	69.92	.1266	.4543	.1867	.0415	.0134	.9134	.0000	.0000	.7031	.9871	.6958	.6808	.9443
10	-1.23	1.40	14.45	53.11	66.17	.0913	.4334	.1801	.0415	.0205	.9163	.0000	.0000	.7012	.9867	.7125	.7073	.9504
15	-1.24	1.66	14.83	49.52	62.83	.0698	.4080	.1378	.0329	.0162	.9370	.0000	.0000	.7555	.9723	.7267	.7172	.9775
30	-.92	2.78	9.79	45.15	52.04	.0423	.3831	.0561	.0147	.0036	.9762	.0000	.0000	.9015	.9161	.7199	.7294	1.0141
50	-3.21	1.47	6.27	39.35	44.10	.0197	.3840	.0544	.0160	.0102	.9797	.0000	.0000	.8984	.8391	.6612	.7590	1.0197
70	-5.00	.67	6.15	36.72	42.17	.0202	.3757	.0360	.0118	.0052	.9883	.0000	.0000	.9151	.7681	.6194	.7909	1.0539
85	-6.24	.17	8.94	35.38	44.14	.0311	.3813	.0425	.0150	.0040	.9872	.0000	.0000	.8856	.7298	.5931	.8085	1.0735
90	-6.36	.22	9.46	35.88	45.16	.0391	.4055	.0688	.0249	.0107	.9803	.0000	.0000	.8257	.7085	.5833	.8001	1.0644
95	-6.39	.37	9.60	37.07	46.23	.0523	.4513	.1263	.0467	.0274	.9655	.0000	.0000	.7341	.6899	.5221	.7916	1.0509

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7387.	183.51	1.1280	1.4068	80.03	80.96

Table XI Performance with Uniform Inlet Flow, Optimization Test, 5° Open Stator

100% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	517.5	1013.3	517.5	571.0	.0	837.1	.00	55.70	39.49	-29.21	670.7	654.3	-426.5	319.3	426.5	517.7
10	19.306	16.853	529.2	978.1	529.2	588.9	.0	781.0	.00	52.98	41.06	-21.99	701.8	635.2	-461.0	237.8	461.0	543.1
15	15.361	17.635	539.7	945.2	539.7	609.6	.0	722.4	.00	49.84	42.53	-14.17	732.4	628.8	-495.0	154.1	495.0	568.3
30	18.427	19.988	564.3	867.2	564.3	569.3	.0	654.:	.00	48.96	46.46	-.99	819.2	569.8	-593.9	10.0	593.9	644.2
50	22.273	23.137	583.4	784.6	583.4	545.1	.0	564.3	.00	45.99	50.90	18.39	925.0	574.8	-717.8	-181.4	717.8	745.6
70	25.934	26.288	591.1	740.6	591.1	536.1	.0	510.9	.00	43.62	54.73	32.10	1023.7	633.0	-835.8	-336.3	835.8	847.2
85	28.573	28.641	590.2	717.6	590.2	502.5	.0	512.3	.00	45.56	57.34	39.26	1093.7	649.0	-920.8	-410.7	920.8	923.0
90	29.403	29.417	588.9	706.1	588.9	477.9	.0	519.7	.00	47.41	58.14	41.88	1115.7	641.8	-947.6	-428.3	947.6	948.0
95	30.215	30.208	587.5	690.7	587.5	446.5	.0	526.9	.00	49.72	58.90	45.00	1137.2	631.5	-973.8	-446.6	973.8	973.5

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-1.63	5.28	7.28	68.70	70.73	.0012	.3118	.1482	.0272	.0269	1.5289	.9309	.9267	.4944	.4740	.9190	.6146	.5934
10	-.65	5.96	8.64	63.05	65.77	.0025	.3612	.0693	.0142	.0137	1.5393	.9651	.9630	.8376	.4855	.8834	.6448	.5737
15	.10	6.30	12.47	56.70	62.90	.0050	.3877	-.0038	-.0009	-.0020	1.5447	1.0033	1.0035	1.0061	.4959	.8512	.6746	.5663
30	1.10	6.74	12.25	47.45	52.99	.0117	.5237	.0211	.0056	.0025	1.5491	.9857	.9848	.9711	.5197	.7709	.7575	.5066
50	2.22	7.18	13.35	32.51	38.69	.0149	.5629	.0290	.0082	.0040	1.5409	.9751	.9735	.9647	.5376	.6902	.8556	.5057
70	3.44	7.62	11.92	22.63	26.94	.0179	.5456	.0398	.0110	.0060	1.5489	.9606	.9581	.9517	.5448	.6470	.9466	.5530
85	3.90	7.55	9.08	18.08	19.60	.0220	.5695	.1105	.0297	.0238	1.5524	.8889	.8818	.8735	.5437	.6216	1.0098	.5622
90	3.95	7.43	9.55	16.26	18.36	.0236	.5896	.1499	.0395	.0333	1.5477	.8496	.8401	.8332	.5425	.6090	1.0294	.5536
95	3.79	7.14	10.79	13.89	17.52	.0259	.6116	.1917	.0488	.0422	1.5394	.8083	.7963	.7933	.5411	.5931	1.0487	.5423

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1416	1.5452	93.46	93.85	37.46

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	908.7	614.2	514.2	601.6	749.2	-123.5	55.53	-11.60	-18.36	51.18	542.0	959.7	170.7	-747.7	578.5	624.2
10	18.665	19.908	898.1	593.8	555.0	585.5	706.1	-98.7	51.83	-9.57	-10.68	51.66	564.9	943.8	104.5	-740.3	601.5	641.6
15	19.362	20.485	886.7	603.4	594.9	599.9	657.6	-64.7	47.87	-6.15	-3.23	50.39	595.8	940.9	33.6	-724.9	624.0	660.2
30	21.439	22.268	861.8	622.4	609.0	620.6	609.8	-47.5	45.03	-4.37	7.59	50.95	614.5	985.2	-81.2	-765.1	690.9	717.6
50	24.186	24.672	822.7	609.8	621.3	607.5	539.3	-52.8	40.96	-4.97	21.13	54.38	666.1	1043.1	-240.1	-847.9	779.5	795.1
70	26.928	27.186	799.5	609.5	625.9	606.9	497.4	-56.3	38.47	-5.30	30.62	56.94	727.3	1112.5	-370.4	-932.4	867.8	876.1
85	28.974	29.120	785.8	607.7	601.8	605.4	505.2	-52.8	40.02	-4.98	35.46	58.58	738.8	1161.5	-428.5	-991.2	933.8	938.5
90	29.643	29.759	777.4	586.7	582.6	584.9	514.7	-46.0	41.46	-4.50	37.10	59.80	730.5	1162.9	-440.7	-1005.1	955.3	959.1
95	30.316	30.402	765.7	571.8	557.6	569.8	524.8	-98.0	43.27	-4.82	39.04	61.00	717.9	1175.2	-452.2	-1027.8	977.0	979.8

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	5.07	7.55	10.32	67.13	69.92	.1817	.5338	.1413	.0311	-.0088	.9503	.0000	.0000	.7942	.8090	.5297	.4863	.8278
10	4.48	7.09	11.95	61.40	66.16	.1299	.5417	.1855	.0424	.0128	.9360	.0000	.0000	.7347	.8009	.5119	.5069	.8137
15	3.21	6.06	14.80	54.02	62.80	.0847	.5103	.1669	.0398	.0196	.9435	.0000	.0000	.7460	.7915	.5217	.5322	.8134
30	6.07	9.68	12.30	49.41	52.02	.0760	.4753	.1064	.0279	.0080	.9658	.0000	.0000	.8190	.7659	.5382	.5456	.8518
50	5.48	10.09	8.05	45.92	43.88	.0624	.4696	.0882	.0260	.0076	.9738	.0000	.0000	.8386	.7274	.5267	.5884	.9010
70	4.83	10.45	8.75	43.77	42.04	.0920	.4648	.1037	.0340	.0038	.9708	.0000	.0000	.7957	.7036	.5256	.6398	.9593
85	5.66	12.04	11.20	45.00	44.14	.1627	.4784	.1251	.0443	-.0133	.9662	.0000	.0000	.7386	.6862	.5209	.6452	.9956
90	6.13	12.69	11.91	45.95	45.16	.2048	.5074	.1655	.0601	-.0143	.9563	.0000	.0000	.6719	.6762	.5005	.6355	.9921
95	6.93	13.67	11.79	48.09	46.23	.2637	.5318	.1819	.0676	-.0304	.9535	.0000	.0000	.6451	.6630	.4857	.6213	.9983

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7386.	166.14	1.1416	1.4888	86.02	85.83

Table XI Performance with Uniform Inlet Flow, Optimization Test, 5° Open Stator

100% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	472.5	988.2	472.5	538.9	.0	828.3	.00	56.95	42.04	-29.99	636.2	622.4	-426.0	311.1	426.0	517.1
10	14.306	16.853	483.1	952.8	483.1	553.8	.0	775.2	.00	54.45	43.63	-22.79	667.4	601.1	-460.5	232.7	460.5	542.5
15	15.361	17.635	492.6	922.0	492.6	574.2	.0	721.4	.00	51.48	45.11	-14.96	698.0	594.7	-494.5	153.7	494.5	567.7
30	18.427	19.988	514.1	850.6	514.1	540.2	.0	657.0	.00	50.57	49.09	-1.41	784.9	541.1	-593.2	13.5	593.2	643.4
50	22.273	23.137	528.3	778.2	528.3	513.1	.0	585.0	.00	48.74	53.62	17.27	890.6	538.3	-717.0	-159.8	717.0	744.8
70	25.934	26.288	531.3	726.8	531.3	487.6	.0	538.9	.00	47.87	57.52	32.23	989.6	576.6	-834.8	-307.4	834.8	846.2
85	28.573	28.641	528.1	702.6	528.1	438.1	.0	549.3	.00	51.43	60.14	40.38	1060.6	575.3	-919.8	-372.7	919.8	922.0
90	29.403	29.417	526.3	693.6	526.3	418.7	.0	552.7	.00	52.86	60.92	43.29	1083.0	575.3	-946.5	-394.2	946.5	947.0
95	30.215	30.208	524.5	680.3	524.5	385.6	.0	560.4	.00	55.47	61.66	46.89	1105.1	564.9	-972.6	-412.0	972.6	972.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	.94	7.83	6.46	72.03	70.70	.0037	.3217	.1504	.0274	.0267	1.5251	.9357	.9319	.5110	.4315	.8934	.5818	.5627
10	1.94	8.52	7.86	66.41	65.80	.0060	.3773	.0776	.0158	.0146	1.5330	.9638	.9616	.8275	.4420	.8577	.6124	.5411
15	2.68	8.87	11.67	60.06	62.91	.0100	.4063	.0043	.0010	-.0013	1.5399	.9987	.9986	.9905	.4514	.8276	.6425	.5338
30	3.74	9.35	11.85	50.49	53.03	.0194	.5406	.0221	.0058	.0007	1.5512	.9860	.9851	.9702	.4718	.7544	.7261	.4799
50	4.97	9.90	12.32	36.35	38.80	.0232	.5941	.0476	.0135	.0069	1.5546	.9632	.9608	.9441	.4844	.6825	.8240	.4721
70	6.27	10.42	12.04	25.30	26.94	.0267	.5962	.0861	.0238	.0163	1.5556	.9238	.9189	.9018	.4867	.6317	.9134	.5012
85	6.70	10.33	10.22	19.75	19.61	.0314	.6377	.1714	.0453	.0370	1.5613	.8448	.8347	.8140	.4835	.6047	.9756	.4950
90	6.71	10.19	10.98	17.63	18.38	.0323	.6494	.1980	.0510	.0426	1.5616	.8197	.8079	.7883	.4818	.5948	.9951	.4934
95	6.54	9.88	12.68	14.77	17.52	.0338	.6720	.2364	.0582	.0498	1.5571	.7848	.7708	.7539	.4802	.5808	1.0141	.4819

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1464	1.5523	91.42	91.93	34.75

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	884.1	590.2	481.3	577.9	741.5	-119.7	57.01	-11.69	-18.78	52.13	508.5	941.5	163.7	-743.2	577.9	623.5
10	18.665	19.908	871.2	566.0	516.8	557.4	701.4	-97.9	53.62	-9.97	-11.01	52.97	526.5	925.5	100.5	-738.8	600.8	640.9
15	19.362	20.485	860.3	575.0	556.2	570.6	656.3	-71.2	49.72	-7.12	-3.40	52.01	557.2	927.1	33.1	-730.7	623.3	657.4
30	21.439	22.268	836.8	594.8	571.0	592.4	611.7	-53.2	46.97	-5.13	7.81	52.42	576.6	971.5	-78.5	-77.0	69.1	716.6
50	24.186	24.672	802.8	586.9	576.4	584.7	558.7	-51.4	44.11	-5.02	20.86	55.33	617.2	1024.1	-219.8	-845.6	778.6	794.2
70	26.928	27.186	770.6	567.3	564.3	564.3	524.6	-58.2	42.91	-5.89	31.23	58.84	660.1	1090.7	-342.2	-933.3	866.8	875.1
85	28.974	29.120	755.6	557.6	526.4	555.3	542.0	-50.2	45.84	-5.16	36.58	60.65	655.6	1133.0	-390.7	-987.6	932.7	937.4
90	29.643	29.759	749.7	545.9	512.7	544.1	546.9	-43.3	46.86	-4.55	38.47	61.48	654.8	1139.6	-407.3	-1001.3	954.2	958.0
95	30.316	30.402	740.0	544.7	486.0	542.6	558.1	-48.4	48.95	-5.10	40.68	62.15	640.9	1161.6	-417.8	-1027.1	975.9	978.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	6.57	9.05	10.23	68.71	69.92	.2051	.5451	.1394	.0307	-.0144	.9532	.0000	.0000	.7988	.7844	.5084	.4549	.8109
10	6.20	8.83	11.55	63.59	66.16	.1526	.5581	.1885	.0431	.0082	.9382	.0000	.0000	.7347	.7737	.4871	.4719	.7764
15	5.08	7.94	13.82	56.84	62.79	.1026	.5298	.1755	.0418	.0173	.9436	.0000	.0000	.7365	.7652	.4960	.4960	.7998
30	7.98	11.60	11.59	52.09	52.07	.0945	.4950	.1299	.0341	.0093	.9603	.0000	.0000	.7825	.7411	.5129	.5103	.8378
50	8.62	13.22	7.99	49.13	43.88	.0950	.4914	.1300	.0382	.0103	.9632	.0000	.0000	.7656	.7066	.5048	.5426	.8843
70	9.18	14.78	8.18	48.80	42.13	.1541	.5119	.1732	.0567	.0063	.9546	.0000	.0000	.6794	.6736	.4858	.5769	.9340
85	11.50	17.87	11.02	51.00	44.14	.2892	.5399	.2172	.0769	-.0255	.9458	.0000	.0000	.5881	.6545	.4737	.5675	.9625
90	11.45	17.99	11.85	51.41	45.16	.3398	.5580	.2467	.0895	-.0338	.9395	.0000	.0000	.5457	.6478	.4823	.5663	.9851
95	12.68	19.41	11.52	54.04	46.23	.4341	.5690	.2427	.0901	-.0711	.9422	.0000	.0000	.5348	.6365	.4597	.5499	.9802

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7378.	154.11	1.1464	1.4793	80.85	81.86

Table XII Performance with Uniform Inlet Flow, Optimization Test, 5° Closed Stator

Rotor

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	574.0	1077.8	574.0	659.9	.0	852.2	.00	52.25	36.61	-26.88	715.0	739.9	-426.4	334.6	426.4	517.6
10	14.306	16.853	586.8	1053.4	586.8	636.1	.0	839.7	.00	52.86	38.14	-25.00	746.2	701.9	-460.9	296.7	460.9	542.9
15	15.361	17.635	598.7	1017.7	598.7	638.6	.0	792.3	.00	51.13	39.58	-19.33	776.7	677.1	-494.9	224.2	494.9	568.1
30	18.477	19.988	629.2	900.8	629.2	651.9	.0	650.2	.00	44.92	43.33	-.55	865.1	652.5	-593.7	6.3	593.7	643.9
50	22.293	23.137	655.9	831.9	655.9	624.3	.0	549.9	.00	41.37	47.57	17.39	972.2	654.3	-717.6	-195.5	717.6	745.4
70	25.934	26.288	667.9	762.5	667.9	601.5	.0	468.6	.00	37.92	51.36	32.17	1069.7	710.6	-835.5	-378.3	835.5	846.9
85	28.573	28.641	668.9	735.6	668.9	587.9	.0	442.2	.00	36.95	54.00	39.26	1137.9	759.3	-920.5	-480.6	920.5	922.7
90	29.403	29.417	667.9	718.8	667.9	563.0	.0	446.7	.00	38.44	54.81	41.67	1159.1	753.7	-947.3	-501.0	947.3	947.7
95	30.215	30.208	666.5	689.3	666.5	515.0	.0	458.1	.00	41.65	55.60	45.00	1179.8	728.4	-973.4	-515.1	973.4	973.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-4.53	2.38	9.72	63.49	70.83	.0002	.2394	.2440	.0457	.0456	1.4979	.8717	.8643	-.9603	.5281	.9872	.6579	.6778
10	-3.60	3.03	5.71	63.15	65.83	.0007	.3285	.2079	.0417	.0415	1.5274	.8859	.8789	.3648	.5405	.9584	.6872	.6366
15	-2.89	3.35	7.32	58.90	62.86	.0020	.3827	.1607	.0354	.0350	1.5332	.9046	.8987	.6514	.5518	.9212	.7155	.6129
30	-2.04	3.64	12.69	43.88	52.93	.0061	.4518	.0512	.0135	.0119	1.5286	.9614	.9591	.9216	.5818	.8252	.7992	.5848
50	-1.13	3.87	12.36	30.18	38.67	.0082	.4978	.0423	.0120	.0096	1.5148	.9598	.9574	.9447	.6088	.7374	.9028	.5800
70	.06	4.26	11.99	19.19	26.92	.0104	.4795	.0444	.0123	.0094	1.4893	.9489	.9460	.9425	.6207	.6715	.9947	.6258
85	.55	4.21	9.08	14.73	19.60	.0156	.4678	.0677	.0182	.0140	1.4846	.9171	.9124	.9128	.6216	.6447	1.0581	.6655
90	.62	4.11	9.33	13.14	18.35	.0175	.4861	.1105	.0292	.0246	1.4713	.8656	.8581	.8635	.6206	.6273	1.0778	.6578
95	.50	3.85	10.79	10.60	17.52	.0200	.5225	.1782	.0454	.0403	1.4445	.7854	.7741	.7928	.6192	.5977	1.0968	.6316

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1343	1.5002	91.54	92.00	40.52

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	967.5	715.3	595.3	708.5	762.6	-97.6	52.02	-7.85	-17.21	45.52	623.4	1011.3	184.2	-721.6	578.3	624.0
10	18.665	19.908	973.3	750.7	611.0	747.6	757.7	-67.3	51.12	-5.14	-14.36	43.47	630.7	1030.1	156.4	-708.7	601.3	641.4
15	19.362	20.485	962.5	751.2	637.4	746.3	721.2	-85.9	48.53	-6.57	-8.69	44.98	644.9	1055.2	97.4	-745.9	623.8	660.0
30	21.439	22.268	923.8	707.7	698.3	705.3	604.9	-58.3	40.90	-4.72	7.00	47.72	703.6	1048.4	-85.8	-775.7	690.7	717.4
50	24.186	24.672	890.0	723.4	717.7	723.2	526.2	16.6	36.24	1.31	19.41	47.10	761.2	1062.4	-253.0	-778.3	779.2	794.9
70	26.928	27.186	850.0	714.0	716.3	713.7	457.6	21.5	32.57	1.73	29.78	50.12	825.3	1113.2	-409.9	-854.3	867.5	875.8
85	28.974	29.120	834.0	713.5	710.6	713.0	436.5	25.7	31.56	2.06	34.96	51.99	867.2	1158.0	-497.0	-912.5	933.4	938.2
90	29.643	29.759	822.0	716.1	692.9	715.2	442.3	35.8	32.55	2.87	36.50	52.23	862.0	1167.6	-512.7	-922.9	955.0	958.7
95	30.316	30.402	798.5	652.8	655.4	652.0	456.2	32.6	34.84	2.86	38.46	55.45	836.9	1149.7	-520.5	-946.9	976.7	979.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-8.25	-5.77	4.08	59.87	69.94	.0400	.4544	.2247	.0500	.0411	.9125	.0000	.0000	.6046	.8702	.6223	.5622	.8798
10	-5.95	-3.33	6.40	56.26	66.17	.0368	.4202	.1975	.0457	.0371	.9225	.0000	.0000	.6163	.8737	.6542	.5673	.8977
15	-6.23	-3.34	4.38	55.10	62.80	.0236	.4161	.1957	.0466	.0410	.9245	.0000	.0000	.6102	.8617	.6555	.5809	.9207
30	-8.11	-4.47	1.98	45.62	52.06	.0038	.4200	.2409	.0632	.0622	.9126	.0000	.0000	.5289	.8276	.6174	.6321	.9147
50	-9.23	-4.63	4.40	34.93	43.96	.0011	.3544	.1583	.0467	.0464	.9460	.0000	.0000	.6238	.7955	.6329	.6794	.9295
70	-11.00	-5.39	5.77	30.85	42.02	.0019	.3280	.1217	.0401	.0394	.9615	.0000	.0000	.6628	.7572	.6253	.7340	.9749
85	-12.76	-6.39	8.22	29.50	44.13	.0048	.3190	.1135	.0403	.0386	.9654	.0000	.0000	.6546	.7400	.6238	.7687	1.0125
90	-12.76	-6.21	9.27	29.68	45.15	.0084	.3084	.0824	.0300	.0269	.9756	.0000	.0000	.7222	.7265	.6249	.7618	1.0189
95	-11.53	-4.78	9.47	31.98	46.23	.0180	.3799	.1795	.0668	.0601	.9498	.0000	.0000	.5416	.7009	.5640	.7347	.9933

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7384.	179.69	1.1343	1.4164	77.91	78.96

Table XII Performance with Uniform Inlet Flow, Optimization Test, 5° Closed Stator

Rotor

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	528.8	1026.8	528.8	570.0	.0	854.0	.00	56.27	38.96	-30.41	680.1	661.2	-427.7	334.8	427.7	519.2
10	14.306	16.853	540.5	975.4	540.5	585.3	.0	805.1	.00	53.98	40.54	-23.98	711.2	640.9	-462.3	260.5	462.3	544.6
15	15.361	17.635	551.1	962.6	551.1	592.6	.0	758.4	.00	51.99	42.01	-17.63	741.8	622.2	-496.4	188.5	496.4	569.9
30	18.427	19.988	577.3	878.6	577.3	576.3	.0	663.1	.00	49.00	45.88	-1.69	829.4	576.9	-595.5	17.2	595.5	646.0
50	22.273	23.137	600.1	791.6	600.1	560.4	.0	559.1	.00	44.93	50.18	18.59	937.2	591.5	-719.8	-188.6	719.8	747.7
70	25.934	26.288	611.3	746.6	611.3	550.1	.0	504.8	.00	42.54	53.89	32.08	1037.4	649.2	-838.1	-344.8	838.1	849.6
85	28.573	28.641	612.3	726.7	612.3	530.1	.0	497.1	.00	43.16	56.45	38.95	1108.0	681.6	-923.4	-428.5	923.4	925.6
90	29.403	29.417	611.4	713.7	611.4	504.4	.0	504.9	.00	45.03	57.24	41.47	1129.9	673.2	-950.2	-445.8	950.2	950.7
95	30.215	30.208	610.2	694.3	610.2	470.6	.0	510.4	.00	47.33	58.00	44.71	1151.4	662.1	-976.5	-465.8	976.5	976.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO1	PO2/ TOTAL	EFF-P TOTAL	EFF-AD STATIC	EFF-P	M-1	M-2	M'-1	M'-2
5	-2.18	4.73	6.32	69.37	70.95	.0010	.3166	.2136	.0387	.0385	1.5196	.8984	.8923	.2757	.4843	.9318	.6227	.6001
10	-1.22	5.41	6.77	64.52	65.87	.0021	.3696	.1292	.0261	.0257	1.5379	.9337	.9296	.7004	.4955	.8995	.6519	.5792
15	-.46	5.78	9.02	59.64	62.88	.0044	.4163	.0791	.0176	.0166	1.5447	.9561	.9533	.8533	.5059	.8661	.6808	.5599
30	.52	6.18	11.55	47.58	52.94	.0107	.5238	.0417	.0110	.0082	1.5498	.9715	.9697	.9443	.5313	.7814	.7633	.5131
50	1.48	6.47	13.59	31.58	38.70	.0136	.5489	.0212	.0060	.0022	1.5410	.9811	.9799	.9734	.5536	.6972	.8646	.5210
70	2.59	6.79	11.89	21.81	26.92	.0161	.5340	.0293	.0081	.0036	1.5495	.9699	.9680	.9637	.5646	.6530	.9586	.5679
85	3.00	6.67	8.77	17.50	19.60	.0203	.5408	.0778	.0210	.0155	1.5572	.9182	.9130	.9082	.5655	.6313	1.0239	.5921
90	3.05	6.54	9.13	15.77	18.34	.0221	.5623	.1212	.0321	.0263	1.5501	.8736	.8656	.8623	.5646	.6173	1.0441	.5822
95	2.90	6.25	10.50	13.29	17.52	.0245	.5847	.1661	.0425	.0363	1.5365	.8268	.8161	.8176	.5634	.5976	1.0638	.5700

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1414	1.5455	93.64	94.02	38.21

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	918.5	552.0	509.2	550.9	764.3	-34.6	56.32	-3.59	-19.90	50.17	541.9	860.1	184.2	-660.5	580.1	625.9
10	18.665	19.908	912.5	551.0	550.6	550.8	727.4	5.1	52.87	.53	-12.75	49.20	564.9	843.1	124.2	-638.3	603.2	643.4
15	19.362	20.485	902.2	571.3	579.9	571.3	691.1	8.5	50.00	.85	-6.45	48.84	583.9	868.0	65.3	-653.6	625.7	662.0
30	21.439	22.268	873.6	605.5	617.2	604.4	618.2	36.0	45.05	3.41	6.88	48.52	621.9	912.5	-74.6	-683.6	692.9	719.6
50	24.186	24.672	834.5	591.6	640.3	590.0	535.1	42.9	39.88	4.15	21.03	51.97	686.4	957.8	-246.5	-754.5	781.6	797.3
70	26.928	27.186	812.8	595.6	646.5	594.2	492.5	40.4	37.30	3.89	30.29	54.67	748.9	1027.5	-377.7	-838.2	870.2	878.6
85	28.974	29.120	802.3	601.6	634.9	600.0	490.5	43.6	37.69	4.15	35.08	56.24	775.8	1079.6	-445.8	-897.5	936.4	941.1
90	29.643	29.759	792.9	593.7	615.3	591.4	500.2	51.2	39.11	4.95	36.65	56.99	766.9	1085.8	-457.8	-910.5	958.0	961.7
95	30.316	30.402	777.5	543.1	580.2	541.9	508.4	35.8	40.84	3.78	38.70	60.21	753.8	1090.8	-471.3	-946.7	979.7	982.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO1	PO2/ TOTAL	EFF-P TOTAL	EFF-AD STATIC	EFF-P	M-1	M-2	M'-1	M'-2
5	-4.08	-1.60	8.34	59.92	69.94	.0666	.5875	.1416	.0317	.0168	.9495	.0000	.0000	.8221	.3182	.4729	.4849	.7368
10	-4.37	-1.77	12.08	52.34	66.18	.0408	.5738	.1662	.0386	.0291	.9413	.0000	.0000	.7882	.8139	.4723	.5050	.7226
15	-4.68	-1.85	11.82	49.15	62.82	.0250	.5429	.1370	.0328	.0268	.9525	.0000	.0000	.8143	.8049	.4910	.5201	.7459
30	-3.96	-.36	10.09	41.64	52.07	.0110	.4786	.0506	.0133	.0104	.9834	.0000	.0000	.9224	.7768	.5222	.5523	.7869
50	-5.61	-1.01	7.25	35.73	43.99	.0040	.4633	.0301	.0089	.0077	.9908	.0000	.0000	.9514	.7390	.5103	.6078	.8262
70	-6.30	-.68	7.93	33.41	42.02	.0099	.4493	.0335	.0110	.0077	.9903	.0000	.0000	.9417	.7167	.5131	.6598	.8853
85	-6.66	-.29	10.32	33.54	44.14	.0248	.4475	.0421	.0149	.0061	.9882	.0000	.0000	.9217	.7032	.5163	.6798	.9285
90	-6.19	.37	11.35	34.16	45.15	.0379	.4569	.0470	.0170	.0033	.9871	.0000	.0000	.9099	.6919	.5076	.6692	.9284
95	-5.55	1.20	10.39	37.06	46.23	.0574	.5277	.1237	.0460	.0247	.9674	.0000	.0000	.7934	.6753	.4612	.6549	.9264

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7407.	169.45	1.1414	1.5158	89.23	89.84

Table XII Performance with Uniform Inlet Flow, Optimization Test, 5° Closed Stator

Rotor, *100% of Design Speed*

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	502.3	1003.4	502.3	540.7	.0	845.3	.00	57.39	40.32	-31.21	656.9	632.4	-426.3	327.8	426.3	517.5
10	14.306	16.853	513.2	971.1	513.2	559.2	.0	793.8	.00	54.84	41.92	-24.16	689.8	613.2	-460.8	251.0	460.8	542.9
15	15.361	17.635	523.1	930.8	523.1	565.8	.0	749.1	.00	52.93	43.40	-17.73	720.1	594.3	-494.8	181.0	494.8	568.1
30	18.427	19.988	546.9	858.9	546.9	549.2	.0	660.3	.00	50.25	47.34	-1.71	807.1	549.7	-593.6	16.5	593.6	643.9
50	22.273	23.137	566.9	779.6	566.9	535.1	.0	567.0	.00	46.66	51.68	18.43	914.9	564.1	-717.5	-178.3	717.5	745.3
70	25.934	26.288	576.0	735.6	576.0	525.3	.0	515.0	.00	44.43	55.41	32.28	1014.7	621.3	-835.4	-331.8	835.4	846.8
85	28.573	28.641	575.8	718.6	575.8	500.7	.0	515.4	.00	45.83	57.97	39.12	1085.7	645.4	-920.4	-407.2	920.4	922.6
90	29.403	29.417	574.7	705.0	574.7	472.9	.0	522.8	.00	47.87	58.75	41.94	1107.9	635.8	-947.2	-424.8	947.2	947.6
95	30.215	30.208	573.4	688.8	573.4	442.1	.0	528.2	.00	50.07	59.50	45.18	1129.7	627.3	-973.3	-444.9	973.3	973.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO1	PO2/ TOTAL	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-.83	6.09	5.52	71.53	70.95	.0018	.3353	.2055	.0349	.0366	1.5175	.9068	.9012	.3837	.4590	.9080	.6020	.5723
10	.16	6.79	6.58	66.08	65.87	.0034	.3864	.1198	.0242	.0235	1.5324	.9410	.9374	.7418	.4696	.8751	.6312	.5526
15	.94	7.17	8.94	61.13	62.90	.0065	.4344	.0735	.0163	.0149	1.5383	.9608	.9584	.8709	.4792	.8426	.6599	.5334
30	1.97	7.63	11.54	49.05	52.96	.0141	.5435	.0425	.0112	.0075	1.5455	.9721	.9704	.9449	.5021	.7622	.7416	.4878
50	2.99	7.98	13.40	33.25	38.68	.0172	.5704	.0279	.0079	.0030	1.5448	.9766	.9751	.9661	.5213	.6852	.8418	.4958
70	4.12	8.31	12.10	23.14	26.93	.0199	.5544	.0398	.0110	.0055	1.5543	.9614	.9590	.9520	.5301	.6420	.9352	.5422
85	4.52	8.18	8.94	18.85	19.60	.0237	.5706	.0996	.0268	.0204	1.5659	.9016	.8952	.8853	.5298	.6223	1.0004	.5589
90	4.56	8.05	9.60	16.82	18.35	.0251	.5931	.1428	.0376	.0310	1.5590	.8593	.8503	.8410	.5287	.6078	1.0205	.5481
95	4.39	7.75	10.97	14.32	17.52	.0273	.6132	.1828	.0464	.0395	1.5500	.8198	.8083	.8024	.5274	.5912	1.0400	.5384

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1429	1.5486	93.10	93.51	36.70

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	895.6	532.3	478.9	524.2	756.6	-91.7	57.66	-9.92	-20.44	53.77	511.6	887.1	178.4	-715.6	578.3	623.9
10	18.665	19.908	886.4	527.5	519.5	526.4	717.9	-15.3	54.10	-1.66	-12.70	51.26	533.1	841.7	116.6	-656.6	601.3	641.3
15	19.362	20.485	875.1	538.5	546.8	537.8	683.1	23.6	51.32	2.49	-6.22	49.80	550.4	833.2	59.4	-636.3	623.7	659.9
30	21.439	22.268	847.8	573.4	582.8	572.2	615.7	36.9	46.57	3.69	7.30	49.93	587.9	889.0	-74.9	-680.4	690.6	717.3
50	24.186	24.672	814.7	572.7	607.6	571.2	542.6	42.0	41.76	4.20	21.24	52.81	652.3	945.0	-236.5	-752.8	779.1	794.8
70	26.928	27.186	793.2	575.1	614.3	573.9	501.8	36.9	39.24	3.68	30.75	55.62	715.0	1016.4	-365.6	-838.9	867.4	875.7
85	28.974	29.120	786.4	585.7	600.5	583.8	507.9	46.5	40.22	4.56	35.32	56.78	735.9	1065.7	-425.5	-891.5	933.3	938.0
90	29.643	29.759	776.5	575.8	578.9	573.2	517.5	54.8	41.80	5.46	37.07	57.62	725.5	1070.3	-437.4	-903.8	954.9	958.6
95	30.316	30.402	763.9	532.6	553.9	530.7	526.0	44.1	43.52	4.75	39.13	60.43	714.0	1075.3	-450.5	-935.2	976.6	979.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO1	PO2/ TOTAL	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-2.72	-.24	2.01	67.59	69.94	.0763	.6119	.1408	.0311	.0143	.9518	.0000	.0000	.8232	.7953	.4557	.4562	.7594
10	-3.13	-.54	9.89	55.76	66.18	.0464	.5907	.1663	.0386	.0278	.9440	.0000	.0000	.7885	.7886	.4518	.4747	.7209
15	-3.35	-.53	13.46	48.83	62.81	.0296	.5597	.1512	.0362	.0291	.9501	.0000	.0000	.7980	.7794	.4619	.4880	.7147
30	-2.47	1.09	10.37	42.88	52.09	.0145	.4994	.0674	.0177	.0139	.9789	.0000	.0000	.8987	.7530	.4934	.5187	.7649
50	-3.69	.88	7.36	37.56	44.08	.0071	.4763	.0338	.0099	.0078	.9902	.0000	.0000	.9452	.7202	.4929	.5737	.8133
70	-4.33	1.25	7.72	35.56	42.02	.0156	.4668	.0397	.0130	.0079	.9890	.0000	.0000	.9343	.6976	.4942	.6264	.8734
85	-4.13	2.24	10.70	35.67	44.11	.0397	.4631	.0483	.0171	.0030	.9869	.0000	.0000	.9166	.6867	.5009	.6920	.9115
90	-3.53	3.02	11.87	36.34	45.15	.0589	.4748	.0565	.0205	-.0009	.9851	.0000	.0000	.8993	.6753	.4907	.6310	.9120
95	-2.82	3.92	11.37	38.77	46.23	.0851	.5376	.1277	.0475	.0158	.9675	.0000	.0000	.7868	.6611	.4509	.6177	.9105

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7383.	162.73	1.1429	1.5177	88.55	89.20

Table XIII Performance with Uniform Inlet Flow, Optimization Test, 10° Closed Stator

Rotor

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VD-1 FT/SEC	VD-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VD'-1 FT/SEC	VD'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.035	523.3	1008.8	529.3	572.2	.0	830.8	.00	55.44	39.87	-28.64	680.0	652.3	-426.8	312.8	426.8	513.1
10	14.306	16.853	540.4	984.9	540.4	536.7	.0	824.4	.00	56.84	40.48	-27.53	710.6	607.6	-461.3	280.9	461.3	543.5
15	15.361	17.635	550.8	951.7	550.8	542.7	.0	781.6	.00	55.21	41.36	-21.37	740.8	584.0	-495.4	212.9	495.4	568.7
30	18.427	19.988	579.2	864.8	579.2	586.3	.1	635.2	.00	47.26	45.73	.85	829.8	588.3	-594.2	-9.4	594.2	644.6
50	22.273	23.137	605.8	803.1	605.6	579.6	.0	555.8	.00	43.79	49.85	18.15	939.6	610.8	-718.2	-190.3	718.2	746.1
70	25.934	26.288	618.9	755.3	618.9	566.0	.0	500.1	.00	41.45	53.49	31.54	1040.4	664.4	-836.3	-347.6	836.3	847.7
85	28.573	28.641	620.7	737.7	620.7	552.9	.0	488.4	.00	41.46	56.03	38.21	1111.0	703.6	-921.4	-435.2	921.4	923.6
90	29.403	29.417	613.8	726.0	619.8	530.0	.0	495.2	.00	43.12	56.83	40.49	1132.8	696.9	-948.2	-452.5	948.2	948.6
95	30.215	30.208	616.5	698.8	618.5	478.4	.0	509.3	.00	46.79	57.59	44.17	1154.1	667.1	-974.4	-464.8	974.4	974.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-2.28	4.64	8.21	67.52	71.06	.0009	.3217	.3362	.0567	.0565	1.4675	.8468	.8384	.0340	.4847	.9148	.6222	.5915
10	-1.33	5.32	3.34	68.01	65.98	.0020	.4223	.2891	.0567	.0563	1.4915	.8499	.8413	.4385	.4947	.8871	.5483	.5473
15	-.59	5.71	5.24	63.33	62.79	.0044	.4744	.2372	.0515	.0506	1.4985	.8657	.8589	.6204	.5040	.8534	.6755	.5237
30	.35	6.06	14.09	44.87	52.89	.0103	.5005	.0676	.0178	.0151	1.5077	.9519	.9481	.9074	.5310	.7701	.7572	.5239
50	1.14	6.16	13.23	31.70	38.77	.0128	.5284	.0271	.0076	.0041	1.5321	.9755	.9740	.9652	.5582	.7088	.8635	.5360
70	2.17	6.39	11.33	21.95	26.89	.0150	.5192	.0364	.0101	.0059	1.5369	.9623	.9599	.9544	.5719	.6518	.9602	.5822
85	2.59	6.26	8.04	17.83	19.61	.0191	.5196	.0732	.0200	.0148	1.5468	.9213	.9163	.9127	.5738	.6425	1.0270	.6126
90	2.64	6.13	8.14	16.33	18.34	.0209	.5398	.1152	.0310	.0254	1.5436	.8772	.8695	.8648	.5729	.6297	1.0476	.6044
95	2.49	5.64	5.96	13.42	17.52	.0233	.5810	.1848	.0478	.0417	1.5167	.8051	.7934	.7959	.5716	.6220	1.0673	.5747

TO/TO INLET	PO/PO IN.ET	EFF-AD IN.ET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1393	1.5238	91.81	92.27	38.41

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VD-1 FT/SEC	VD-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VD'-1 FT/SEC	VD'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	901.2	616.9	509.3	616.1	743.3	27.8	55.58	2.59	-17.91	44.08	535.7	857.8	164.4	-596.7	578.9	624.6
10	18.665	19.908	901.9	664.4	512.9	658.2	741.9	-87.2	55.34	-7.[illegible]	-15.27	47.91	531.7	982.4	140.0	-729.2	601.9	642.0
15	19.362	20.485	893.7	660.5	534.5	686.1	712.2	-76.4	53.10	-8.[illegible]	-9.38	48.33	542.6	986.8	87.8	-737.0	624.4	660.6
30	21.439	22.258	854.8	618.9	616.6	616.3	591.3	51.6	43.79	4.81	9.11	47.24	625.7	907.8	-100.2	-666.5	691.4	718.1
50	24.186	24.672	845.3	666.9	657.3	664.6	531.5	55.6	38.96	4.79	20.67	48.07	703.1	994.6	-248.5	-740.0	779.9	795.6
70	25.928	27.186	823.4	683.9	670.8	681.8	487.8	54.1	36.02	4.54	29.55	50.34	771.4	1068.4	-380.6	-822.6	868.4	876.7
85	29.974	29.120	824.4	699.9	668.9	696.2	481.9	71.5	35.77	5.87	34.07	51.25	807.6	1112.3	-452.5	-867.5	934.3	939.0
90	29.643	29.759	817.7	704.5	654.1	700.1	490.7	70.8	36.88	6.42	35.42	51.52	802.6	1125.2	-465.2	-880.8	955.9	959.7
95	30.316	30.402	796.5	647.4	614.1	644.2	507.2	64.6	39.56	5.72	37.45	54.88	773.5	1119.8	-470.4	-915.8	977.6	980.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-9.74	-7.25	9.54	52.99	59.95	.0240	.4864	.2698	.0605	.0551	.8065	.0000	.0000	.5776	.8028	.5323	.4795	.7402
10	-6.25	-3.62	-.95	62.85	66.22	.0243	.4714	.2229	.0513	.0457	.9229	.0000	.0000	.5907	.8025	.5743	.4716	.8491
15	-6.77	-3.86	-.67	59.74	62.83	.0154	.4659	.2391	.0570	.0533	.9189	.0000	.0000	.5689	.7881	.5714	.4859	.8536
30	-10.37	-6.75	5.49	38.98	52.16	.0072	.4381	.3135	.0822	.0822	.9001	.0000	.0000	.4427	.7599	.5360	.5580	.7862
50	-11.51	-6.96	3.06	34.17	44.19	.0000	.3752	.2263	.0666	.0666	.9294	.0000	.0000	.5003	.7506	.5797	.6207	.8646
70	-12.62	-6.95	3.58	31.49	42.02	.0003	.3465	.1787	.0586	.0585	.9463	.0000	.0000	.5377	.7341	.5947	.6793	.9291
85	-13.57	-7.22	6.97	29.90	44.11	.0028	.3272	.1558	.0551	.0541	.9540	.0000	.0000	.5431	.7259	.6073	.7097	.9651
90	-13.45	-6.93	7.83	30.46	45.15	.0061	.3213	.1353	.0489	.0467	.9638	.0000	.0000	.5730	.7177	.6099	.7044	.9740
95	-11.87	-5.13	7.33	33.84	46.23	.0160	.3939	.2248	.0834	.0774	.9382	.0000	.0000	.4354	.6945	.5551	.6748	.9600

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO IN.ET	EFF-AD INLET %	EFF-P INLET %
7391.	170.34	1.1393	1.4215	75.90	77.06

Table XIII Performance with Uniform Inlet Flow, Optimization Test, 10° Closed Stator

Rotor

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	499.5	983.2	499.5	531.7	.0	827.0	.00	57.26	40.47	-30.20	656.6	615.6	-426.1	309.7	426.1	517.3
10	14.335	16.953	510.3	957.9	510.3	554.9	.0	780.7	.00	54.59	42.36	-23.22	687.5	604.2	-460.5	239.1	460.6	542.6
15	15.361	17.835	520.2	930.5	520.2	560.8	.0	742.5	.00	52.94	43.55	-17.29	717.8	587.6	-494.6	174.7	494.6	567.8
30	18.427	19.988	544.1	858.6	544.1	550.3	.0	659.0	.00	50.14	47.47	-1.60	805.0	550.7	-593.3	15.5	593.3	643.6
50	22.273	23.137	563.8	781.9	563.8	530.5	.0	574.4	.00	47.28	51.82	17.92	912.3	557.3	-717.1	-170.6	717.1	745.0
70	25.934	26.288	572.9	738.0	572.9	526.2	.0	517.4	.00	44.51	55.55	32.01	1012.7	620.7	-835.0	-329.0	835.0	846.4
85	28.573	28.641	572.4	721.0	572.4	499.3	.0	523.1	.00	46.18	58.11	38.85	1083.5	641.1	-920.0	-402.1	920.0	922.2
90	29.403	29.417	571.1	708.5	571.1	471.4	.0	529.0	.00	48.30	58.90	41.59	1105.6	630.2	-946.7	-418.2	946.7	947.2
95	30.215	30.203	569.6	689.9	569.6	432.6	.0	537.5	.00	51.17	59.65	45.17	1127.4	613.6	-972.9	-435.1	972.9	972.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO1	PO2/ TOTAL	EFF-P TOTAL	EFF-AD STATIC	M-1	M-2	M'-1	M'-2	
5	-.69	5.23	5.59	70.67	71.01	.0019	.3521	.2396	.0434	.0431	1.4929	.8839	.8825	.3735	.4562	.8383	.5994	.5551
10	.30	6.93	7.55	65.28	65.89	.0036	.3928	.1337	.0272	.0255	1.5166	.9331	.9291	.7242	.4666	.8626	.6284	.5441
15	1.37	7.31	9.37	60.84	62.90	.0067	.4396	.0831	.0185	.0173	1.5288	.9554	.9526	.8574	.4762	.8347	.6571	.5271
30	2.13	7.76	11.64	49.08	52.86	.0144	.5435	.0362	.0095	.0057	1.5469	.9754	.9749	.9525	.4993	.7623	.7392	.4888
50	3.12	8.11	12.79	34.00	38.68	.0175	.5793	.0346	.0098	.0046	1.5492	.9715	.9697	.9588	.5184	.6868	.8394	.4696
70	4.25	8.44	11.83	23.53	28.93	.0202	.5549	.0357	.0099	.0043	1.5599	.9656	.9634	.9567	.5271	.6440	.9332	.5416
85	4.67	8.32	8.67	19.25	19.60	.0241	.5753	.1005	.0273	.0207	1.5714	.9014	.8949	.8842	.5264	.6241	.9984	.5549
90	4.70	8.19	9.25	17.31	18.36	.0254	.5983	.1453	.0385	.0317	1.5658	.8587	.8495	.8389	.5252	.6107	1.0165	.5431
95	4.54	7.68	10.96	14.48	17.52	.0276	.6275	.1944	.0494	.0423	1.5538	.8115	.7994	.7924	.5238	.5915	1.0379	.5261

TO/TO INLET	PO/PO IN.ET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1435	1.5501	92.94	93.36	36.64

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	972.6	463.8	461.4	463.7	743.3	53.5	53.26	6.82	-19.42	51.35	489.9	733.3	152.4	-570.1	578.0	623.6
10	18.665	19.808	870.5	483.0	503.8	480.4	705.6	48.9	54.21	5.95	-11.73	50.90	520.3	761.7	104.8	-591.1	601.0	641.0
15	19.362	20.435	853.3	516.8	539.2	512.5	676.5	65.7	51.45	7.25	-5.57	49.22	542.2	784.6	53.2	-593.9	623.4	659.6
30	21.439	22.269	847.6	570.2	583.9	565.1	614.4	75.7	46.45	7.63	7.36	48.51	589.1	858.8	-75.9	-641.3	690.3	717.0
50	24.186	24.672	817.1	571.1	604.8	566.6	543.4	79.0	42.25	7.95	20.73	51.66	647.2	912.1	-223.3	-715.4	778.7	794.4
70	26.928	27.186	795.9	576.3	615.9	572.1	534.0	69.6	39.29	6.93	30.51	54.62	715.0	988.2	-353.0	-805.8	867.0	875.3
85	28.974	29.120	789.1	586.8	600.5	580.1	512.0	88.4	40.45	8.66	35.03	55.66	733.3	1028.5	-420.9	-849.2	932.9	937.6
90	29.643	29.759	780.6	578.7	579.4	571.1	523.1	93.6	42.08	9.31	36.67	56.55	722.4	1035.2	-431.3	-864.6	954.4	958.2
95	30.316	30.402	765.7	534.2	547.6	527.0	535.3	87.2	44.35	9.40	38.84	59.42	703.0	1035.7	-440.9	-891.7	976.1	976.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO1	PO2/ TOTAL	EFF-P TOTAL	EFF-AD STATIC	M-1	M-2	M'-1	M'-2	
5	-7.40	-4.93	13.56	51.44	69.84	.0353	.6374	.1878	.0419	.0340	.9384	.0000	.0000	.7617	.7752	.3956	.4356	.6253
10	-7.93	-5.35	12.47	48.27	66.16	.0162	.6133	.1943	.0447	.0411	.9366	.0000	.0000	.7645	.7738	.4128	.4539	.6503
15	-8.22	-5.43	13.23	44.19	62.81	.0051	.5661	.1576	.0375	.0356	.9489	.0000	.0000	.7954	.7702	.4429	.4786	.6724
30	-7.61	-4.05	9.31	38.83	52.10	.0019	.4905	.0645	.0168	.0163	.9798	.0000	.0000	.9050	.7528	.4905	.5184	.7354
50	-8.21	-3.85	5.15	34.30	44.13	.0035	.4688	.0328	.0095	.0034	.9905	.0000	.0000	.9490	.7222	.4911	.5686	.7843
70	-9.25	-3.69	5.98	32.36	42.02	.0022	.4544	.0314	.0102	.0095	.9913	.0000	.0000	.9493	.7001	.4951	.6261	.8491
85	-8.93	-2.54	9.60	31.79	44.10	.0127	.4464	.0382	.0134	.0091	.9895	.0000	.0000	.9383	.6890	.5018	.6396	.8794
90	-8.28	-1.73	10.71	32.77	45.15	.0231	.4583	.0460	.0165	.0082	.9878	.0000	.0000	.9228	.6789	.4929	.6385	.8826
95	-6.99	-.25	11.31	34.95	46.23	.0422	.5231	.1123	.0413	.0258	.9714	.0000	.0000	.8137	.6622	.4518	.6075	.8760

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7379.	152.33	1.1435	1.5211	89.71	89.35

Table XIII Performance with Uniform Inlet Flow, Optimization Test, 10° Closed Stator

Rotor

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VU-1 FT/SEC	VU-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B*-1 DEGREE	B*-2 DEGREE	V*-1 FT/SEC	V*-2 FT/SEC	VU*-1 FT/SEC	VU*-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	475.8	973.8	476.8	515.2	.0	826.4	.00	58.05	41.79	-30.93	639.6	630.9	-426.3	308.9	426.3	517.4
10	14.306	16.853	487.2	945.1	487.2	541.4	.0	774.6	.00	55.04	43.40	-23.17	670.6	589.2	-460.8	231.8	460.8	542.8
15	15.361	17.635	495.6	918.4	496.6	546.4	.0	738.1	.00	53.43	44.89	-17.29	701.3	572.4	-494.7	170.1	494.7	568.0
30	18.427	19.988	513.7	851.4	518.7	531.4	.0	665.2	.00	51.38	48.84	-2.31	783.2	531.9	-533.5	21.4	533.5	643.8
50	22.273	23.137	536.2	779.9	536.2	514.6	.0	586.1	.00	48.72	53.22	17.17	895.6	538.8	-717.4	-159.1	717.4	745.2
70	25.934	26.288	542.5	731.4	542.5	499.3	.0	534.5	.00	46.85	57.00	32.01	996.0	589.0	-835.3	-312.2	835.3	846.7
85	28.573	28.641	540.8	713.1	540.8	485.4	.0	540.2	.00	49.26	59.56	39.40	1067.4	602.3	-920.3	-382.3	920.3	922.5
90	29.403	29.417	533.4	705.8	539.4	442.5	.0	549.8	.00	51.17	60.34	41.95	1089.8	595.1	-947.0	-397.7	947.0	947.5
95	30.215	30.208	537.9	692.8	537.9	411.9	.0	557.0	.00	53.51	61.07	45.28	1111.9	585.4	-973.2	-415.9	973.2	972.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M*-1	M*-2
5	.64	7.56	5.80	72.72	70.96	.0033	.3578	.2404	.0427	.0427	1.4955	.8939	.8878	.3799	.4349	.8785	.5832	.5421
10	1.65	8.27	7.56	66.57	65.87	.0056	.3977	.1335	.0272	.0263	1.5139	.9358	.9321	.7283	.4449	.9498	.6125	.5298
15	2.43	8.66	9.38	62.18	62.92	.0096	.4464	.0841	.0188	.0166	1.5262	.9565	.9539	.8573	.4541	.8226	.6416	.5127
30	3.47	9.12	10.94	51.15	52.98	.0187	.5570	.0458	.0121	.0071	1.5497	.9714	.9696	.9414	.4753	.7545	.7238	.4713
50	4.53	9.51	12.13	36.05	38.69	.0221	.5961	.0432	.0122	.0063	1.5586	.9663	.9641	.9494	.4919	.6840	.8241	.4726
70	5.71	9.89	11.84	24.98	26.93	.0249	.5850	.0649	.0180	.0111	1.5637	.9414	.9376	.9247	.4976	.6364	.9170	.5125
85	6.12	9.76	9.22	20.16	19.50	.0292	.6117	.1357	.0364	.0285	1.5752	.8746	.8664	.8492	.4958	.6150	.9813	.5195
90	6.13	9.62	9.62	18.39	18.37	.0300	.6325	.1729	.0455	.0376	1.5765	.8410	.8303	.8128	.4945	.6063	1.0012	.5112
95	5.96	9.31	11.07	15.79	17.52	.0318	.6543	.2113	.0536	.0455	1.5719	.8057	.7928	.7773	.4932	.5925	1.0207	.5007

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/AI LBM/SEC SQFT
1.1466	1.5555	91.73	92.23	35.16

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VU-1 FT/SEC	VU-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B*-1 DEGREE	B*-2 DEGREE	V*-1 FT/SEC	V*-2 FT/SEC	VU*-1 FT/SEC	VU*-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.358	851.7	450.6	441.2	448.7	740.1	41.5	59.19	5.29	-23.15	52.38	470.7	735.1	151.3	-582.3	578.2	623.8
10	19.665	19.908	853.8	460.5	485.3	457.4	701.3	53.2	55.26	6.62	-11.74	52.12	497.4	744.9	100.2	-588.0	601.2	641.2
15	19.362	20.485	947.8	485.3	516.0	478.9	672.6	77.5	52.53	9.13	-5.46	50.67	518.7	754.1	49.0	-582.3	623.6	659.8
30	21.439	22.268	835.3	547.4	560.1	543.2	619.6	67.2	47.88	7.05	7.19	50.11	565.0	847.1	-70.9	-650.0	690.5	717.2
50	24.166	24.672	809.2	556.5	583.9	551.2	560.1	77.8	43.80	8.03	20.52	52.44	623.9	904.3	-218.9	-716.9	779.0	784.6
70	25.928	27.186	783.2	551.8	586.4	546.7	519.2	74.3	41.52	7.74	30.59	55.69	692.0	970.1	-348.1	-801.3	867.3	875.6
85	28.974	29.120	775.7	560.7	565.3	553.5	531.1	89.7	43.21	9.21	35.42	56.87	693.7	1012.8	-402.1	-848.2	933.2	937.9
90	29.643	29.759	772.2	553.4	548.6	549.9	543.5	98.9	44.73	9.98	36.85	57.45	685.6	1022.2	-411.2	-861.6	954.7	958.5
95	30.316	30.402	762.8	520.5	523.6	515.5	554.7	72.6	46.65	8.02	38.85	60.37	672.3	1042.9	-421.7	-906.6	976.4	979.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M*-1	M*-2
5	-6.26	-3.80	12.23	53.90	69.94	.0416	.6512	.1843	.0412	.0319	.9408	.0000	.0000	.7875	.7642	.3841	.4177	.6265
10	-6.83	-4.26	13.14	48.64	66.16	.0192	.6303	.1968	.0453	.0403	.9377	.0000	.0000	.7635	.7584	.3930	.4373	.6358
15	-7.18	-4.40	15.10	43.37	62.80	.0101	.5897	.1758	.0416	.0392	.9449	.0000	.0000	.7797	.7536	.4151	.4559	.6450
30	-6.21	-2.68	8.74	40.82	52.10	.0035	.5145	.0727	.0190	.0181	.9779	.0000	.0000	.8989	.7403	.4698	.4957	.7271
50	-6.84	-2.11	5.28	35.77	44.12	.0015	.4857	.0371	.0108	.0104	.9893	.0000	.0000	.9456	.7149	.4775	.5453	.7758
70	-7.05	-1.50	6.78	33.78	42.02	.0057	.4812	.0408	.0133	.0114	.9890	.0000	.0000	.9404	.6873	.4723	.5941	.8203
85	-6.17	.17	10.33	34.31	44.38	.0247	.4786	.0468	.0164	.0078	.9877	.0000	.0000	.9353	.6747	.4772	.6027	.8520
90	-5.64	.90	11.40	34.75	45.15	.0397	.4868	.0570	.0204	.0062	.9852	.0000	.0000	.9146	.6691	.4736	.5945	.8669
95	-4.73	2.04	9.63	38.64	46.23	.0631	.5527	.1243	.0459	.0225	.9687	.0000	.0000	.8034	.6578	.4387	.5794	.8789

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7381.	155.94	1.1466	1.5243	87.26	87.99

APPENDIX F

BLADE ELEMENT AND OVERALL PERFORMANCE UNIFORM INLET FLOW

(FOR TABLE HEADINGS SEE APPENDIX D)

Table XIV	Nominal Stator, Solid Casing
Table XV	10° Closed Stator, Solid Casing
Table XVI	Nominal Stator, Treated Casing

Table XIV(a) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

Rotor

65% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	335.7	680.5	335.7	423.2	.0	533.0	.00	51.55	39.49	-24.96	435.1	466.9	-276.7	197.1	276.7	335.9
10	14.306	16.853	342.7	661.4	342.7	418.0	.0	512.6	.00	50.80	41.11	-20.96	454.9	447.9	-299.1	160.2	299.1	352.4
15	15.361	17.635	348.7	640.6	348.7	417.9	.0	485.5	.00	49.28	42.64	-15.59	474.1	434.3	-321.2	116.8	321.2	368.7
30	18.427	19.988	361.6	583.0	361.8	409.6	.0	414.8	.00	45.35	46.79	.45	528.6	410.2	-385.3	-3.1	385.3	417.9
50	22.273	23.137	371.3	527.1	371.3	395.5	.0	348.4	.00	41.37	51.43	18.86	595.6	416.4	-465.7	-135.4	465.7	483.7
70	25.934	26.288	375.0	494.1	375.0	388.1	.0	305.8	.00	38.24	55.33	32.13	659.3	458.4	-542.2	-243.8	542.2	549.6
85	28.573	28.641	374.5	479.0	374.5	387.6	.0	294.6	.00	37.96	57.91	38.86	705.1	485.0	-597.4	-309.2	597.4	598.8
90	29.403	29.417	373.8	465.6	373.8	389.5	.0	295.7	.00	39.44	58.70	41.61	719.5	480.9	-614.8	-319.3	614.8	615.0
95	30.215	30.208	373.0	448.5	373.0	387.5	.0	295.5	.00	41.21	59.44	44.88	733.6	476.3	-631.7	-336.1	631.7	631.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-1.55	5.32	11.51	64.46	70.74	.0000	.2093	.1079	.0206	.0208	1.2032	.9460	.9945	1.3502	.3042	.6146	.3955	.4216
10	-.52	6.03	9.70	62.07	65.85	.0000	.2854	.0716	.0148	.0148	1.2088	.9614	.9603	.6703	.3111	.5959	.4151	.4035
15	.24	6.42	11.04	58.23	62.93	.0000	.3400	.0420	.0095	.0095	1.2101	.9755	.9748	.8737	.3166	.5761	.4334	.3905
30	1.46	7.06	13.71	46.34	53.04	.0001	.4396	.0180	.0048	.0047	1.2055	.9866	.9862	.9653	.3284	.5218	.4834	.3671
50	2.77	7.72	13.67	32.57	38.75	.0003	.4742	.0227	.0064	.0063	1.1976	.9781	.9775	.9622	.3365	.4698	.5433	.3729
70	4.05	8.23	11.95	23.21	26.94	.0004	.4571	.0287	.0079	.0078	1.1946	.9663	.9654	.9518	.3396	.4392	.5994	.4075
85	4.47	8.12	8.68	19.06	19.60	.0008	.4575	.0628	.0170	.0168	1.1943	.9208	.9187	.8963	.3392	.4247	.6396	.4301
90	4.50	7.98	9.28	17.08	18.36	.0009	.4770	.1025	.0271	.0269	1.1886	.8696	.8663	.8386	.3385	.4121	.6525	.4257
95	4.33	7.68	10.67	14.56	17.52	.0010	.4959	.1421	.0363	.0360	1.1810	.8170	.8124	.7859	.3377	.3962	.6650	.4208

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/AI LBM/SEC SQFT
1.0560	1.1976	94.56	94.70	25.96

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	622.2	424.7	400.0	423.2	476.5	-35.2	49.99	-4.77	-14.20	46.13	412.6	610.6	101.2	-440.2	375.3	404.9
10	18.665	19.908	621.5	437.8	414.5	437.4	463.1	-19.2	48.17	-2.51	-9.98	44.87	420.9	617.2	72.9	-435.4	390.2	416.2
15	19.362	20.485	616.3	461.4	428.8	460.9	442.6	-20.5	45.90	-2.54	-5.04	44.23	430.6	643.3	37.8	-448.8	404.8	428.3
30	21.439	22.268	592.1	460.2	448.2	459.4	386.8	-26.9	40.80	-3.35	7.79	46.99	452.6	673.5	-61.4	-492.4	448.2	465.6
50	24.186	24.672	558.8	448.3	448.5	447.7	333.2	-23.3	36.61	-2.98	21.02	50.29	480.7	700.8	-172.5	-537.1	505.7	515.8
70	26.928	27.186	534.9	449.6	443.9	448.9	298.5	-25.8	33.91	-3.29	30.79	52.93	516.8	744.7	-264.5	-594.2	563.0	568.4
85	28.974	29.120	522.9	450.7	434.4	450.0	291.1	-24.6	33.83	-3.13	35.92	54.61	536.4	777.1	-314.7	-633.5	605.8	608.8
90	29.643	29.759	511.2	434.1	418.6	433.1	293.4	-27.2	35.03	-3.63	37.95	56.29	530.9	780.8	-326.4	-649.4	619.8	622.2
95	30.316	30.402	496.3	403.0	399.6	399.5	294.4	-52.8	36.38	-7.53	40.35	59.87	524.3	796.0	-339.5	-688.4	633.8	635.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-5.40	-2.89	11.64	54.75	69.41	.0000	.4950	.1599	.0356	.0356	.9695	.0000	.0000	.7293	.5584	.3750	.3709	.5392
10	-4.15	-1.48	13.75	50.68	65.92	.0000	.4693	.1420	.0328	.0328	.9730	.0000	.0000	.7469	.5576	.3869	.3778	.5453
15	-3.82	-.93	13.13	48.45	62.54	.0000	.4261	.0773	.0184	.0184	.9855	.0000	.0000	.8443	.5525	.4084	.3865	.5095
30	-3.20	.45	8.24	44.14	51.95	.0000	.4033	.0344	.0090	.0090	.9940	.0000	.0000	.9250	.5293	.4077	.4060	.5967
50	-3.88	.74	5.03	39.58	43.88	.0000	.3845	.0282	.0083	.0083	.9956	.0000	.0000	.9296	.4991	.3971	.4299	.6208
70	-4.74	.88	5.78	37.20	42.10	.0000	.3583	.0289	.0095	.0095	.9958	.0000	.0000	.9118	.4771	.3984	.4609	.6598
85	-5.51	.88	8.05	36.96	44.14	.0000	.3522	.0425	.0151	.0151	.9941	.0000	.0000	.8463	.4650	.3988	.4772	.6877
90	-5.27	1.30	7.78	38.66	45.16	.0000	.3788	.0727	.0264	.0264	.9904	.0000	.0000	.7557	.4535	.3834	.4712	.6696
95	-5.02	1.73	4.08	43.91	46.23	.0000	.4486	.1392	.0514	.0514	.9827	.0000	.0000	.6185	.4398	.3549	.4650	.7011

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
4792.	115.09	1.0560	1.1869	89.74	90.00

Table XIV(a) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

65% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	284.3	647.0	284.3	351.8	.0	542.9	.00	57.05	44.29	-30.36	397.2	408.0	-277.4	206.2	277.4	330.7
10	14.306	16.853	290.3	623.8	290.3	366.1	.0	505.0	.00	54.06	45.92	-22.49	417.4	396.5	-299.9	151.8	299.9	353.3
15	15.361	17.635	295.5	602.8	295.5	359.7	.0	483.6	.00	53.35	47.45	-17.54	437.0	377.7	-322.0	114.0	322.0	369.6
30	18.427	19.988	306.6	554.2	306.6	355.5	.0	425.2	.00	50.09	51.56	-.99	493.1	356.2	-386.2	6.2	386.2	419.0
50	22.273	23.137	313.7	507.6	313.7	348.2	.0	369.3	.00	46.68	56.10	18.32	562.5	367.6	-466.9	-115.7	466.9	485.0
70	25.934	26.288	314.4	472.2	314.4	333.3	.0	334.4	.00	45.10	59.95	33.02	628.0	397.8	-543.6	-216.6	543.6	551.0
85	28.573	28.641	311.6	444.9	311.6	292.4	.0	335.2	.00	48.90	62.51	42.20	675.1	394.9	-598.9	-265.2	598.9	600.3
90	29.403	29.417	310.4	438.7	310.4	280.4	.0	337.4	.00	50.28	63.27	44.88	690.1	395.8	-616.3	-279.2	616.3	616.6
95	30.215	30.208	309.3	430.5	309.3	265.7	.0	338.7	.00	51.88	63.97	47.94	704.8	396.7	-633.3	-294.5	633.3	633.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	3.23	10.11	6.12	74.65	70.74	.0000	.2880	.1796	.0326	.0326	1.2028	.9254	.9233	.0598	.2569	.5818	.3602	.3669
10	4.28	10.83	8.18	68.41	65.86	.0003	.3399	.0945	.0193	.0193	1.2048	.9561	.9549	.7053	.2628	.5600	.3804	.3560
15	5.04	11.21	9.08	64.99	62.94	.0016	.4124	.0855	.0191	.0187	1.2054	.9566	.9554	.8130	.2677	.5400	.3994	.3384
30	6.21	11.80	12.28	52.54	53.06	.0058	.5147	.0442	.0117	.0102	1.2080	.9715	.9707	.9297	.2775	.4944	.4514	.3178
50	7.46	12.37	13.40	37.78	38.84	.0063	.5450	.0401	.0113	.0095	1.2082	.9672	.9663	.9414	.2834	.4609	.5143	.3265
70	8.71	12.84	12.81	26.93	26.91	.0065	.5415	.0730	.0200	.0182	1.2054	.9285	.9265	.8942	.2835	.4180	.5728	.3522
85	9.07	12.69	12.09	20.32	19.68	.0078	.5878	.1643	.0423	.0403	1.1995	.8303	.8257	.7764	.2809	.3920	.6128	.3479
90	9.04	12.51	12.58	18.39	18.40	.0078	.5995	.1889	.0473	.0454	1.1993	.8031	.7979	.7494	.2799	.3861	.6252	.3483
95	8.85	12.18	13.73	16.04	17.52	.0080	.6103	.2132	.0515	.0495	1.1981	.7764	.7695	.7220	.2790	.3782	.6374	.3485

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.0600	1.2048	91.21	91.45	22.21

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	587.5	370.4	329.0	367.5	486.7	-46.3	55.94	-7.17	-18.55	50.91	347.1	582.8	110.4	-452.3	376.3	406.0
10	18.665	19.908	579.2	358.1	357.4	354.9	465.8	-28.5	51.89	-4.59	-10.24	51.48	363.3	569.8	64.5	-445.8	391.2	417.3
15	19.362	20.485	570.7	366.0	362.8	365.4	440.4	-21.5	50.52	-3.36	-5.46	50.98	364.6	580.3	34.6	-450.9	405.8	429.4
30	21.439	22.268	551.5	396.7	383.7	396.1	396.2	-22.0	45.91	-3.19	7.88	50.98	387.6	629.2	-53.2	-488.8	449.4	466.8
50	24.186	24.672	525.8	392.1	389.8	391.5	352.9	-21.7	42.15	-3.17	21.54	53.99	419.4	666.1	-154.0	-536.8	507.0	517.1
70	26.928	27.186	499.4	387.7	378.7	387.1	325.6	-21.8	40.70	-3.22	32.25	56.80	447.9	707.0	-238.9	-591.6	564.4	569.8
85	28.974	29.120	475.6	367.0	341.9	366.5	330.5	-19.6	44.03	-3.05	38.99	59.81	439.9	728.8	-276.8	-629.9	607.3	610.4
90	29.643	29.759	470.8	357.2	331.6	356.6	334.1	-20.0	45.22	-3.22	40.90	61.01	438.7	736.0	-287.2	-643.8	621.3	623.8
95	30.316	30.402	464.0	348.7	318.7	346.6	337.3	-37.4	46.62	-6.16	43.09	62.81	436.4	758.5	-298.2	-674.7	635.5	637.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	.34	2.86	9.23	63.11	69.41	.0000	.5656	.1262	.0279	.0279	.9784	.0000	.0000	.8146	.5241	.3258	.3121	.5126
10	-.35	2.33	11.65	56.49	65.90	.0000	.5728	.1635	.0376	.0376	.9727	.0000	.0000	.7595	.5173	.3131	.3248	.5011
15	.78	3.67	12.31	53.88	62.53	.0000	.5468	.1362	.0325	.0325	.9779	.0000	.0000	.7886	.5096	.3221	.3257	.5106
30	1.93	5.56	8.39	49.10	51.93	.0000	.4765	.0488	.0128	.0128	.9926	.0000	.0000	.9086	.4917	.3498	.3457	.5547
50	1.67	6.27	4.84	45.32	43.89	.0001	.4627	.0578	.0170	.0170	.9920	.0000	.0000	.8815	.4680	.3456	.3729	.5870
70	1.92	7.52	5.87	43.91	42.16	.0007	.4516	.0751	.0247	.0245	.9905	.0000	.0000	.8319	.4437	.3413	.3975	.6225
85	4.69	11.06	8.13	47.09	44.14	.0132	.4893	.1258	.0446	.0399	.9856	.0000	.0000	.7128	.4202	.3219	.3886	.6392
90	4.90	11.45	8.19	48.44	45.16	.0209	.5145	.1628	.0592	.0515	.9818	.0000	.0000	.6410	.4154	.3128	.3870	.6444
95	5.29	12.03	5.45	52.79	46.23	.0331	.5493	.1858	.0689	.0566	.9798	.0000	.0000	.5973	.4087	.3048	.3842	.6632

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
4804.	98.48	1.0600	1.1892	84.68	85.07

Table XIV(b) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

80% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	483.6	915.2	483.6	625.6	.0	667.9	.00	46.87	35.24	-22.03	592.1	674.9	-341.7	253.2	341.7	414.7
10	15.306	16.853	494.2	895.5	494.2	611.0	.0	654.7	.00	46.97	36.77	-19.75	617.0	649.5	-369.3	219.6	369.3	435.1
15	15.361	17.635	503.5	863.7	503.5	602.4	.0	618.8	.00	45.76	38.22	-15.15	640.9	624.7	-396.6	163.5	396.6	455.3
30	18.427	19.988	524.9	775.1	524.9	579.7	.0	514.3	.00	41.56	42.18	.18	708.4	580.5	-475.7	-1.7	475.7	516.0
50	22.273	23.137	541.5	693.6	541.5	559.0	.0	410.5	.00	36.28	46.72	18.45	789.9	590.1	-575.0	-186.8	575.0	597.3
70	25.934	26.288	548.2	634.7	548.2	536.5	.0	339.1	.00	32.30	50.69	32.31	865.3	635.1	-669.5	-339.5	669.5	678.7
85	28.573	28.641	548.0	609.2	548.0	522.2	.0	313.8	.00	31.01	53.39	39.18	919.0	673.7	-737.7	-425.6	737.7	739.4
90	29.403	29.417	547.2	592.0	547.2	502.7	.0	312.5	.00	31.87	54.22	41.64	935.7	672.8	-759.1	-447.0	759.1	759.5
95	30.215	30.208	546.1	565.2	546.1	472.0	.0	311.0	.00	33.38	55.01	44.81	952.2	665.3	-780.1	-468.9	780.1	779.9

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-5.82	1.06	14.44	57.27	70.72	.0000	.1202	.0783	.0153	.0153	1.3297	.9555	.9537	1.4827	.4425	.8386	.5431	.6185
10	-4.87	1.68	10.90	56.52	65.81	.0000	.2013	.0449	.0093	.0093	1.3474	.9736	.9725	-.1345	.4532	.8172	.5681	.5927
15	-4.19	1.99	11.46	53.37	62.89	.0000	.2664	.0369	.0083	.0083	1.3441	.9763	.9753	.8194	.4622	.7849	.5913	.5677
30	-3.16	2.45	13.42	42.00	53.00	.0001	.3799	.0342	.0090	.0090	1.3201	.9710	.9699	.9288	.4822	.6980	.6545	.5227
50	-1.94	3.01	13.47	28.26	38.75	.0004	.4100	.0209	.0059	.0058	1.2954	.9766	.9757	.9630	.4973	.6207	.7293	.5280
70	-.59	3.59	12.14	18.38	26.94	.0008	.3948	.0262	.0072	.0070	1.2717	.9634	.9621	.9546	.5032	.5658	.7971	.5661
85	-.05	3.60	9.00	14.21	19.60	.0014	.3857	.0482	.0130	.0126	1.2625	.9267	.9243	.9174	.5029	.5415	.6446	.5988
90	.02	3.51	9.31	12.57	18.36	.0016	.3992	.0839	.0222	.0218	1.2511	.8715	.8674	.8628	.5021	.5249	.8596	.5966
95	-.10	3.26	10.60	10.20	17.52	.0018	.4189	.1309	.0335	.0330	1.2327	.7973	.7913	.7979	.5010	.4996	.8744	.5981

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/AI LBM/SEC SQFT
1.0800	1.2901	94.44	94.63	35.51

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	834.6	642.4	583.6	641.5	596.7	-35.3	45.64	-3.16	-12.86	39.85	598.6	835.5	133.3	-535.4	463.4	500.0
10	18.665	19.908	843.9	671.8	602.0	671.1	591.4	-30.0	44.49	-2.56	-10.31	39.03	612.0	863.9	109.5	-544.0	481.9	514.0
15	19.362	20.485	835.2	684.7	615.9	683.9	564.0	-34.3	42.48	-2.87	-5.95	39.47	619.5	886.0	64.2	-563.2	499.9	528.9
30	21.439	22.268	797.5	670.6	636.9	669.7	479.9	-34.3	36.99	-2.93	6.58	42.29	641.5	905.4	-73.6	-609.2	553.5	574.9
50	24.186	24.672	753.5	635.8	642.9	635.3	392.9	-23.9	31.43	-2.16	19.79	46.12	683.6	916.9	-231.5	-660.9	624.4	637.0
70	26.928	27.186	710.9	611.0	629.1	610.1	331.1	-33.7	27.75	-3.16	30.06	50.32	727.0	955.6	-364.1	-735.5	695.2	701.9
85	28.974	29.120	689.7	599.5	616.0	599.0	310.1	-23.0	26.72	-2.20	35.41	52.29	755.8	979.4	-437.9	-774.8	748.0	751.8
90	29.643	29.759	674.7	574.5	599.3	574.1	310.0	-19.7	27.35	-1.97	37.23	53.93	752.6	975.2	-455.3	-788.0	765.3	768.3
95	30.316	30.402	651.7	529.8	573.4	529.2	309.8	-23.6	28.38	-2.55	39.51	56.79	743.2	966.3	-472.9	-808.5	782.7	784.9

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-9.63	-7.11	13.25	48.80	69.41	.0000	.3936	.1669	.0372	.0372	.9474	.0000	.0000	.6571	.7571	.5688	.5436	.7398
10	-7.81	-5.12	13.67	47.05	65.91	.0000	.3690	.1328	.0306	.0306	.9574	.0000	.0000	.7051	.7637	.5959	.5549	.7664
15	-7.21	-4.29	12.81	45.35	62.55	.0000	.3468	.0845	.0202	.0202	.9733	.0000	.0000	.7957	.7542	.6086	.5613	.7875
30	-7.15	-3.46	8.65	39.92	51.94	.0000	.3257	.0269	.0071	.0071	.9921	.0000	.0000	.9396	.7172	.5968	.5819	.8057
50	-9.14	-4.48	5.95	33.59	43.97	.0000	.3181	.0269	.0079	.0079	.9929	.0000	.0000	.9329	.6763	.5655	.6160	.8155
70	-10.98	-5.31	5.93	30.91	42.12	.0000	.3087	.0206	.0068	.0068	.9950	.0000	.0000	.9335	.6379	.5434	.6547	.8498
85	-12.66	-6.26	8.98	28.93	44.14	.0000	.3021	.0350	.0124	.0124	.9921	.0000	.0000	.8682	.6163	.5323	.6769	.8697
90	-12.95	-6.37	9.43	29.33	45.16	.0000	.3261	.0726	.0264	.0264	.9842	.0000	.0000	.7623	.6005	.5086	.6716	.8633
95	-13.09	-6.32	9.06	30.93	46.23	.0000	.3776	.1383	.0515	.0515	.9717	.0000	.0000	.6375	.5800	.4668	.6627	.8515

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5917.	157.46	1.0800	1.2729	89.30	89.66

Table XIV(b) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

80% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.066	417.2	633.0	417.2	505.7	.0	661.9	.00	52.62	39.25	-26.13	538.8	563.4	-340.9	248.1	340.9	413.8
10	14.306	16.853	424.2	608.3	424.2	508.6	.0	628.2	.00	51.01	40.84	-20.84	543.4	544.5	-362.6	194.2	368.6	434.1
15	15.361	17.635	434.2	781.7	434.2	505.6	.0	596.2	.00	49.69	42.34	-15.66	567.4	525.5	-395.6	142.0	395.6	454.2
30	18.487	19.988	462.6	711.4	462.5	491.9	.0	513.9	.00	46.24	46.36	.12	585.8	492.5	-474.6	-.9	474.6	514.8
50	22.273	23.137	466.7	643.1	466.7	475.2	.0	433.2	.00	42.35	50.87	18.87	739.6	502.6	-573.7	-162.7	573.7	595.9
70	25.934	26.288	472.8	603.0	472.8	466.4	.0	382.2	.00	39.33	54.71	32.29	818.4	551.9	-668.0	-294.9	668.0	677.1
85	28.573	28.641	472.7	584.2	472.7	461.7	.0	370.5	.00	39.37	57.29	39.11	874.7	582.1	-735.9	-367.2	735.9	737.7
90	29.403	29.417	471.9	567.8	471.9	426.8	.0	374.5	.00	41.20	58.07	41.92	892.3	573.6	-757.3	-383.1	757.3	757.7
95	30.215	30.208	470.9	546.9	470.9	401.0	.0	374.9	.00	43.07	58.82	45.15	909.6	568.7	-778.2	-403.2	778.2	778.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-1.83	5.05	10.34	65.37	70.72	.0000	.2375	.1201	.0227	.0227	1.3198	.9409	.9385	-.0689	.3797	.7547	.4913	.5104
10	-.83	6.74	9.76	61.72	65.81	.0000	.3005	.0613	.0127	.0127	1.3286	.9674	.9661	.7701	.3886	.7301	.6154	.4918
15	-.08	6.11	10.96	58.06	62.90	.0003	.3569	.0377	.0085	.0084	1.3302	.9783	.9774	.9038	.3960	.7039	.6383	.4732
30	1.01	6.63	13.36	46.24	53.00	.0023	.4642	.0145	.0038	.0032	1.3260	.9892	.9888	.9749	.4129	.6359	.6015	.4402
50	2.19	7.15	13.84	31.99	38.70	.0034	.4974	.0130	.0037	.0027	1.3169	.9874	.9869	.9799	.4258	.5712	.6777	.4464
70	3.42	7.60	12.12	22.41	26.94	.0042	.4790	.0188	.0052	.0040	1.3143	.9785	.9776	.9713	.4312	.5335	.7484	.4882
85	3.84	7.50	8.93	18.18	19.60	.0057	.4818	.0595	.0160	.0145	1.3146	.9289	.9261	.9130	.4310	.5148	.7987	.5129
90	3.80	7.37	9.58	16.15	18.35	.0060	.5057	.1066	.0280	.0264	1.3054	.8732	.8683	.8523	.4302	.4988	.8145	.5038
95	3.72	7.07	10.94	13.67	17.52	.0064	.5233	.1456	.0370	.0354	1.2950	.8250	.8185	.8054	.4293	.4808	.8300	.4981

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/AI LBM/SEC SQFT
1.0860	1.3166	95.11	95.30	31.57

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	751.3	522.0	462.1	520.0	592.4	-44.6	52.04	-4.90	-15.72	46.26	480.1	752.2	130.1	-543.5	462.3	498.8
10	18.665	19.908	749.1	521.2	489.0	520.7	567.4	-21.0	49.25	-2.31	-10.06	45.71	496.6	745.7	86.7	-533.8	480.7	512.8
15	19.362	20.485	741.5	550.8	504.7	550.4	543.2	-20.8	47.10	-2.17	-5.04	44.89	506.8	777.0	44.5	-548.4	498.7	527.6
30	21.439	22.268	715.5	551.1	531.3	550.7	479.2	-21.6	42.04	-2.25	7.81	47.22	536.5	810.9	-73.0	-595.2	552.2	573.5
50	24.186	24.672	681.8	529.8	541.4	529.5	414.4	-16.4	37.43	-1.78	21.06	50.91	580.3	839.9	-208.6	-651.9	622.9	635.5
70	26.928	27.186	657.7	522.7	541.8	522.2	372.8	-24.0	34.53	-2.63	30.62	54.21	629.7	892.9	-320.8	-724.2	693.6	700.2
85	28.974	29.120	645.3	520.4	531.6	519.8	365.9	-23.7	34.55	-2.61	35.59	56.11	653.6	932.2	-380.3	-773.7	746.3	750.0
90	29.643	29.759	631.7	494.2	511.0	493.5	371.4	-24.8	36.01	-2.90	37.50	58.04	644.1	932.7	-392.1	-791.3	763.5	766.5
95	30.316	30.402	615.9	460.0	489.7	457.4	373.4	-48.7	37.33	-6.08	39.76	61.19	637.0	949.2	-407.4	-831.7	780.8	783.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-3.41	-.89	11.50	56.95	69.41	.0000	.4883	.1522	.0338	.0338	.9601	.0000	.0000	.7480	.6734	.4575	.4319	.6593
10	-3.06	.38	13.94	51.66	65.91	.0000	.4802	.1659	.0383	.0383	.9567	.0000	.0000	.7233	.6713	.4568	.4456	.6537
15	-2.63	.27	13.51	49.27	62.53	.0000	.4339	.0929	.0222	.0222	.9762	.0000	.0000	.8244	.6641	.4841	.4544	.6830
30	-1.96	1.69	9.34	44.29	51.94	.0000	.4105	.0384	.0101	.0101	.9907	.0000	.0000	.9221	.6388	.4849	.4808	.7134
50	-3.06	1.56	6.23	39.21	43.88	.0000	.4078	.0331	.0098	.0098	.9927	.0000	.0000	.9288	.6075	.4657	.5183	.7383
70	-4.11	1.53	6.43	37.16	42.07	.0000	.4030	.0370	.0122	.0122	.9923	.0000	.0000	.9117	.5849	.4592	.5603	.7844
85	-4.77	1.62	8.57	37.16	44.14	.0001	.4077	.0477	.0169	.0169	.9905	.0000	.0000	.8749	.5713	.4560	.5788	.8169
90	-4.28	2.29	8.51	38.91	45.16	.0006	.4456	.0880	.0320	.0318	.9832	.0000	.0000	.7936	.5573	.4315	.5687	.8144
95	-4.10	2.66	5.54	43.40	46.23	.0015	.5083	.1413	.0524	.0518	.9743	.0000	.0000	.7107	.5424	.4002	.5617	.8258

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5003	139.98	1.0860	1.2901	90.03	90.40

Table XIV(b) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

Rotor

80% of Design Speed

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	369.1	800.0	369.1	439.2	.0	668.6	.00	56.70	42.77	-30.04	502.9	507.5	-341.6	254.0	341.6	414.6
10	14.306	16.853	377.0	771.4	377.0	459.4	.0	619.7	.00	53.44	44.39	-21.89	527.7	495.3	-369.2	184.7	369.2	434.9
15	15.361	17.635	383.9	746.3	383.9	450.7	.0	594.9	.00	52.85	45.91	-17.20	551.9	472.2	-396.4	139.7	396.4	455.1
30	18.427	19.988	399.4	685.6	399.4	441.2	.0	524.7	.00	49.93	49.97	-1.14	621.0	441.9	-475.6	8.9	475.6	515.8
50	22.273	23.137	410.5	627.7	410.5	432.5	.0	454.9	.00	46.44	54.46	18.15	706.4	456.0	-574.8	-142.2	574.8	597.1
70	25.934	26.288	413.1	583.8	413.1	418.2	.0	407.2	.00	44.25	58.32	32.97	786.5	498.7	-669.3	-271.2	669.3	678.4
85	28.573	28.641	409.9	551.7	409.9	368.8	.0	410.3	.00	48.06	60.93	41.73	843.7	494.3	-737.4	-328.9	737.4	739.2
90	29.403	29.417	408.4	540.7	408.4	347.9	.0	413.9	.00	49.96	61.71	44.79	861.8	490.3	-758.8	-345.3	758.8	759.2
95	30.215	30.208	407.0	529.8	407.0	328.1	.0	416.0	.00	51.74	62.44	47.93	879.6	489.8	-779.8	-363.6	779.8	779.6

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.69	8.58	6.43	72.81	70.72	.0005	.2972	.1533	.0279	.0278	1.3214	.9341	.9314	.3210	.3349	.7213	.4572	.4576
10	2.73	9.30	8.77	66.28	65.83	.0013	.3426	.0628	.0129	.0126	1.3255	.9701	.9689	.8189	.3426	.6939	.4817	.4455
15	3.50	9.68	9.44	63.11	62.93	.0034	.4138	.0554	.0124	.0116	1.3275	.9713	.9701	.6854	.3492	.6691	.5051	.4234
30	4.62	10.23	12.11	51.11	53.03	.0092	.5206	.0249	.0066	.0041	1.3321	.9837	.9830	.9624	.3633	.6105	.5694	.3935
50	5.81	10.79	13.18	36.32	38.79	.0107	.5492	.0181	.0051	.0021	1.3339	.9849	.9842	.9746	.3730	.5555	.6476	.4035
70	7.07	11.21	12.77	25.35	26.93	.0119	.5360	.0429	.0117	.0084	1.3296	.9577	.9560	.9409	.3748	.5141	.7203	.4392
85	7.49	11.12	11.61	19.19	19.66	.0145	.5833	.1422	.0366	.0330	1.3206	.8552	.8493	.8197	.3718	.4826	.7699	.4323
90	7.49	10.96	12.49	16.92	18.39	.0148	.6010	.1764	.0443	.0405	1.3173	.8193	.8120	.7818	.3705	.4717	.7850	.4277
95	7.32	10.65	13.72	14.51	17.52	.0154	.6136	.2047	.0494	.0457	1.3145	.7888	.7804	.7517	.3692	.4611	.7999	.4262

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.0907	1.3275	93.01	93.29	28.23

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	716.3	482.8	392.8	478.7	598.9	-62.7	56.74	-7.44	-19.05	49.61	415.7	730.6	135.7	-562.5	463.3	499.8
10	18.665	19.908	706.1	458.4	431.1	456.8	559.2	-37.4	52.37	-4.68	-10.20	50.35	438.0	715.9	77.6	-551.1	481.7	513.8
15	19.362	20.485	697.2	472.6	439.0	472.3	541.7	-16.0	50.97	-1.94	-5.47	49.07	441.1	720.9	42.0	-544.6	499.7	528.7
30	21.439	22.268	676.2	501.7	467.0	501.6	488.9	-10.7	46.31	-1.23	7.83	49.41	471.6	770.9	-64.3	-585.4	553.3	574.7
50	24.186	24.672	651.5	484.3	485.0	484.2	435.0	-10.8	41.88	-1.27	21.29	53.21	520.9	808.5	-189.2	-647.5	624.2	636.7
70	26.928	27.186	625.5	463.8	483.8	463.4	396.4	-19.9	39.33	-2.46	31.68	57.29	568.7	857.6	-298.6	-721.5	694.9	701.6
85	28.974	29.120	602.1	432.7	445.9	432.4	404.5	-17.9	42.22	-2.37	37.59	60.67	562.8	882.7	-343.2	-769.4	747.7	751.5
90	29.643	29.759	593.6	413.3	429.3	412.9	409.8	-17.5	43.67	-2.43	39.60	62.27	557.3	887.4	-355.2	-785.5	765.0	768.0
95	30.316	30.402	585.2	397.8	413.4	396.6	414.3	-30.7	45.06	-4.43	41.68	64.06	553.5	906.7	-368.1	-815.3	782.4	784.6

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.16	3.68	8.96	64.18	69.41	.0009	.5257	.1325	.0293	.0291	.9681	.0000	.0000	.7938	.6378	.4217	.3731	.6451
10	.13	2.81	11.58	57.06	65.90	.0000	.5404	.1852	.0426	.0426	.9565	.0000	.0000	.7184	.6298	.4001	.3912	.6249
15	1.23	4.11	13.76	52.91	62.55	.0002	.5080	.1505	.0359	.0358	.9655	.0000	.0000	.7559	.6217	.4129	.3931	.6298
30	2.39	5.96	10.32	47.54	51.90	.0006	.4487	.0534	.0140	.0139	.9884	.0000	.0000	.8974	.6015	.4392	.4195	.6749
50	1.40	6.01	6.74	43.15	43.88	.0020	.4567	.0578	.0171	.0165	.9883	.0000	.0000	.8870	.5781	.4234	.4619	.7068
70	.60	6.20	6.61	41.79	42.14	.0024	.4766	.0494	.0228	.0220	.9870	.0000	.0000	.8677	.5536	.4047	.5030	.7482
85	2.86	9.23	8.80	44.59	44.14	.0146	.5300	.1091	.0387	.0335	.9811	.0000	.0000	.7989	.5293	.3752	.4947	.7654
90	3.35	9.91	8.97	46.10	45.16	.0225	.5653	.1455	.0529	.0447	.9755	.0000	.0000	.7439	.5204	.3673	.4885	.7673
95	3.72	10.46	7.18	49.50	46.23	.0325	.6035	.1727	.0642	.0521	.9717	.0000	.0000	.7058	.5118	.3430	.4838	.7819

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5915.	125.18	1.0907	1.3027	86.60	87.10

Table XIV(c) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

90% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	550.6	1043.6	550.6	705.0	.0	769.4	.00	47.50	34.95	-23.21	671.7	767.2	-384.8	302.4	384.8	467.0
10	14.306	16.853	563.1	1018.0	563.1	692.1	.0	746.5	.00	47.16	36.45	-20.32	700.0	738.3	-415.9	256.6	415.9	489.9
15	15.361	17.635	574.2	981.8	574.2	679.4	.0	708.7	.00	46.20	37.87	-16.06	727.5	707.6	-446.6	196.1	446.6	512.7
30	18.427	19.988	600.8	879.3	600.8	659.4	.0	581.6	.00	41.40	41.72	-.03	804.9	660.1	-535.7	.5	535.7	561.1
50	22.273	23.137	621.3	785.7	621.3	630.2	.0	469.3	.00	36.66	46.18	17.87	897.4	663.0	-647.5	-203.4	647.5	672.6
70	25.934	26.288	628.3	711.9	628.3	596.5	.0	388.5	.00	33.07	50.20	32.19	981.4	705.3	-753.9	-375.7	753.9	764.2
85	28.573	28.641	626.9	670.7	626.9	568.7	.0	355.6	.00	32.03	52.96	39.99	1040.7	742.3	-830.7	-477.0	830.7	832.6
90	29.403	29.417	625.5	646.8	625.5	542.0	.0	352.9	.00	33.08	53.81	42.83	1059.2	739.0	-854.8	-502.3	854.8	855.2
95	30.215	30.208	623.9	620.4	623.9	508.8	.0	355.1	.00	34.91	54.61	45.80	1077.4	729.7	-878.4	-523.1	878.4	878.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-6.13	.76	13.25	58.15	70.71	.0000	.1218	.1110	.0214	.0214	1.4314	.9385	.9353	1.6277	.5065	.9633	.6189	.7082
10	-5.22	1.36	10.32	56.77	65.79	.0000	.2005	.0689	.0143	.0143	1.4522	.9601	.9580	-.9951	.5192	.9346	.6474	.6778
15	-4.55	1.69	10.55	53.93	62.88	.0001	.2706	.0637	.0143	.0143	1.4486	.9599	.9577	.7068	.5302	.8963	.6742	.6459
30	-3.63	1.99	13.21	41.75	52.99	.0012	.3783	.0412	.0109	.0105	1.4163	.9659	.9642	.9181	.5558	.7936	.7482	.5958
50	-2.46	2.48	12.89	28.32	38.76	.0022	.4192	.0383	.0108	.0102	1.3822	.9588	.9569	.9385	.5751	.7028	.8354	.5930
70	-1.07	3.10	12.02	18.01	26.94	.0033	.4114	.0555	.0153	.0144	1.3433	.9262	.9231	.9146	.5812	.6331	.9121	.6272
85	-.48	3.17	9.81	12.97	19.60	.0050	.4055	.0883	.0235	.0222	1.3191	.8712	.8660	.8662	.5797	.5939	.9648	.6573
90	-.39	3.09	10.51	10.98	18.37	.0054	.4202	.1278	.0332	.0318	1.3002	.8110	.8038	.8140	.5783	.5708	.9813	.6522
95	-.49	2.85	11.58	8.82	17.62	.0059	.4415	.1759	.0442	.0427	1.2800	.7392	.7299	.7562	.5768	.5493	.9974	.6413

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1027	1.3699	91.58	91.95	39.14

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	948.8	716.2	653.3	715.4	688.1	-34.5	46.99	-2.76	-14.27	39.87	674.1	932.1	166.2	-597.5	521.9	563.1
10	18.665	19.908	955.9	745.3	677.8	744.8	674.1	-28.6	44.84	-2.20	-10.98	39.19	690.6	961.0	131.5	-607.3	542.6	578.8
15	19.362	20.485	946.4	756.9	691.8	756.2	645.7	-30.7	43.02	-2.33	-6.83	39.63	697.1	981.9	82.8	-626.3	562.9	595.6
30	21.439	22.268	904.0	740.9	723.1	740.3	542.4	-29.9	36.87	-2.31	6.37	42.45	728.0	1003.9	-80.9	-677.2	623.3	647.4
50	24.186	24.672	855.4	711.5	728.0	711.2	449.1	-21.7	31.66	-1.75	19.22	46.09	771.4	1025.8	-254.0	-739.0	703.1	717.3
70	26.928	27.186	802.2	676.8	706.8	676.0	379.3	-33.5	28.22	-2.83	29.72	50.62	814.1	1065.7	-403.6	-823.8	782.8	790.3
85	28.974	29.120	767.6	646.1	682.4	645.8	351.4	-21.0	27.25	-1.85	35.73	53.34	840.7	1081.5	-490.9	-867.5	842.3	846.6
90	29.643	29.759	746.8	616.2	659.7	616.0	349.9	-13.2	27.94	-1.23	37.81	54.96	835.1	1073.0	-511.9	-878.3	861.8	865.1
95	30.316	30.402	729.0	574.0	631.8	573.9	353.6	-11.2	29.24	-1.11	39.87	57.33	823.2	1063.2	-527.7	-895.0	881.3	883.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-8.83	-6.32	13.64	49.25	69.41	.0000	.4092	.1832	.0408	.0408	.9295	.0000	.0000	.6619	.8631	.6310	.6144	.8212
10	-7.42	-4.74	14.03	47.04	65.90	.0000	.3850	.1524	.0352	.0352	.9407	.0000	.0000	.6982	.8679	.6582	.6279	.8487
15	-6.69	-3.77	13.35	45.35	62.54	.0000	.3665	.1124	.0268	.0268	.9570	.0000	.0000	.7640	.8570	.6696	.6336	.8688
30	-7.25	-3.56	9.27	39.18	51.94	.0000	.3439	.0576	.0151	.0151	.9795	.0000	.0000	.8739	.8155	.6569	.6620	.8897
50	-8.89	-4.23	6.36	33.42	43.98	.0000	.3292	.0329	.0097	.0097	.9893	.0000	.0000	.9245	.7692	.6309	.6982	.9096
70	-10.53	-4.86	6.26	31.05	42.14	.0000	.3249	.0215	.0071	.0071	.9937	.0000	.0000	.9418	.7195	.5996	.7331	.9441
85	-12.14	-5.74	9.33	29.10	44.14	.0000	.3302	.0463	.0165	.0165	.9874	.0000	.0000	.8616	.6841	.5706	.7516	.9552
90	-12.33	-5.74	10.18	29.17	46.16	.0000	.3515	.0774	.0281	.0281	.9801	.0000	.0000	.7833	.6632	.5421	.7431	.9440
95	-12.22	-5.46	10.50	30.35	46.23	.0000	.3948	.1313	.0489	.0489	.9681	.0000	.0000	.6919	.6424	.5023	.7316	.9309

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
6663.	173.55	1.1027	1.3419	85.42	86.01

Table XIV(c) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

90% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	499.9	958.3	499.9	592.7	.0	753.0	.00	51.79	37.59	-25.74	630.9	658.0	-384.9	285.8	384.9	467.2
10	14.306	16.853	511.0	930.6	511.0	594.3	.0	718.1	.00	50.31	39.15	-20.81	658.9	636.0	-416.1	226.0	416.1	490.1
15	15.361	17.635	520.8	900.2	520.8	591.3	.0	678.7	.00	48.93	40.62	-15.64	686.2	614.4	-446.7	165.8	446.7	512.9
30	18.427	19.988	544.2	813.2	544.2	571.1	.0	578.8	.00	45.38	44.56	.26	763.8	571.6	-535.9	-2.5	535.9	581.3
50	22.273	23.137	562.8	731.2	562.8	546.2	.0	486.1	.00	41.66	49.01	18.86	858.1	577.7	-647.8	-186.8	647.8	672.9
70	25.934	26.288	571.1	678.4	571.1	529.6	.0	424.0	.00	38.68	52.87	32.74	946.1	629.7	-754.2	-340.6	754.2	764.5
85	28.573	28.641	572.0	659.7	572.0	519.0	.0	407.3	.00	38.13	55.46	39.36	1008.8	671.2	-831.0	-425.6	831.0	833.0
90	29.403	29.417	571.4	646.2	571.4	499.1	.0	410.5	.00	39.44	56.25	41.72	1028.4	668.7	-855.1	-445.0	855.1	855.5
95	30.215	30.208	570.5	626.0	570.5	471.8	.0	411.5	.00	41.10	57.01	44.71	1047.7	663.8	-878.7	-467.0	878.7	878.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-3.50	3.39	10.72	63.33	70.71	.0000	.2320	.1054	.0199	.0199	1.4254	.9465	.9437	.0346	.4576	.8731	.5783	.5996
10	-2.53	4.05	9.83	59.96	65.79	.0001	.2949	.0477	.0099	.0098	1.4392	.9744	.9731	.8230	.4685	.8444	.6058	.5770
15	-1.81	4.39	10.99	56.26	62.89	.0007	.3515	.0221	.0050	.0048	1.4420	.9875	.9868	.9441	.4781	.8135	.6320	.5553
30	-.80	4.83	13.50	44.30	52.98	.0036	.4597	.0099	.0026	.0017	1.4279	.9926	.9922	.9830	.5003	.7275	.7048	.5113
50	.34	5.30	13.83	30.15	38.70	.0052	.4979	.0156	.0044	.0029	1.4106	.9847	.9839	.9775	.5176	.6486	.7920	.5124
70	1.57	5.76	12.56	20.13	26.93	.0067	.4815	.0250	.0069	.0050	1.3998	.9708	.9694	.9648	.5253	.5985	.8717	.5556
85	2.01	5.68	9.18	16.10	19.60	.0088	.4751	.0533	.0143	.0120	1.4026	.9349	.9317	.9266	.5261	.5796	.9283	.5897
90	2.06	5.56	9.37	14.53	18.34	.0093	.4910	.0907	.0239	.0215	1.3948	.8898	.8845	.8802	.5255	.5659	.9462	.5856
95	1.91	5.27	10.50	12.30	17.52	.0100	.5079	.1310	.0336	.0310	1.3812	.8402	.8327	.8333	.5247	.5463	.9638	.5793

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/AI LBM/SEC SQFT
1.1084	1.4108	95.35	95.57	36.54

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	865.7	583.4	543.4	581.2	673.9	-50.0	51.12	-4.92	-15.61	46.54	564.3	844.9	151.8	-613.2	522.1	563.3
10	18.665	19.908	864.7	600.6	573.9	600.0	646.7	-26.9	48.42	-2.57	-10.27	45.28	583.3	852.7	103.9	-605.9	542.8	579.0
15	19.362	20.485	856.9	628.7	593.3	628.1	618.2	-26.4	46.18	-2.41	-5.32	44.73	596.1	884.1	55.1	-622.2	563.1	595.8
30	21.439	22.268	822.6	627.0	620.8	626.4	539.7	-26.3	41.00	-2.41	7.68	47.09	626.7	920.1	-83.8	-673.9	623.5	647.6
50	24.186	24.672	782.0	602.6	628.7	602.2	465.0	-21.4	36.48	-2.03	20.76	50.81	672.5	953.3	-238.4	-738.9	703.4	717.5
70	26.928	27.186	747.4	588.8	622.4	588.3	413.7	-24.1	33.61	-2.35	30.69	54.17	723.8	1005.0	-369.4	-814.8	783.1	790.6
85	28.974	29.120	735.0	592.5	614.9	592.1	402.5	-21.0	33.21	-2.04	35.59	55.70	756.2	1050.7	-440.1	-867.9	842.6	846.9
90	29.643	29.759	724.1	568.8	598.7	568.3	407.2	-22.3	34.22	-2.26	37.23	57.37	751.9	1054.2	-454.9	-887.7	862.1	865.5
95	30.316	30.402	707.3	525.7	576.4	523.8	410.0	-44.3	35.42	-4.83	39.29	60.57	744.8	1066.0	-471.7	-928.5	881.7	884.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-4.34	-1.82	11.48	56.04	69.41	.0001	.5066	.1788	.0398	.0398	.9410	.0000	.0000	.7300	.7778	.5079	.5086	.7356
10	-3.90	-1.22	13.69	50.98	65.91	.0000	.4799	.1645	.0379	.0379	.9459	.0000	.0000	.7392	.7769	.5238	.5249	.7436
15	-3.56	-.66	13.26	48.58	62.53	.0000	.4412	.1037	.0247	.0247	.9664	.0000	.0000	.8186	.7693	.5499	.5356	.7733
30	-2.97	.68	9.17	43.40	51.89	.0000	.4153	.0391	.0102	.0102	.9882	.0000	.0000	.9273	.7354	.5493	.5626	.8062
50	-4.01	.63	5.98	38.52	43.88	.0002	.4114	.0287	.0085	.0084	.9920	.0000	.0000	.9436	.6967	.5275	.6014	.8345
70	-5.03	.61	6.72	35.96	42.07	.0001	.4042	.0330	.0109	.0108	.9915	.0000	.0000	.9247	.6642	.5150	.6443	.8790
85	-6.13	.27	9.14	35.24	44.14	.0004	.3982	.0392	.0139	.0138	.9903	.0000	.0000	.8967	.6500	.5171	.6693	.9171
90	-6.07	.51	9.14	36.49	45.15	.0009	.4299	.0796	.0289	.0286	.9809	.0000	.0000	.8142	.6378	.4946	.6631	.9166
95	-6.03	.73	6.78	40.26	46.23	.0016	.4959	.1474	.0547	.0541	.9661	.0000	.0000	.7102	.6220	.4548	.6559	.9223

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
6665.	162.05	1.1084	1.3860	90.19	90.63

Table XIV(c) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

90% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	453.5	913.1	453.5	514.6	.0	754.3	.00	55.70	40.35	-29.11	595.1	589.0	-385.3	286.6	385.3	467.7
10	14.306	16.853	463.3	881.4	463.3	534.8	.0	700.6	.00	52.64	41.95	-21.43	623.0	574.6	-416.5	210.0	416.5	490.6
15	15.361	17.635	471.9	852.3	471.9	525.0	.0	671.4	.00	51.98	43.46	-16.74	650.2	548.5	-447.2	158.0	447.2	513.4
30	18.427	19.988	492.1	778.5	492.1	513.1	.0	585.6	.00	48.77	47.47	-.40	728.0	513.4	-536.5	3.6	536.5	501.9
50	22.273	23.137	508.3	708.0	508.3	497.8	.0	503.4	.00	45.32	51.91	18.85	823.9	526.3	-648.4	-170.2	648.4	673.6
70	25.934	26.288	515.3	662.7	515.3	488.6	.0	447.7	.00	42.50	55.69	33.02	914.1	582.8	-755.0	-317.6	755.0	765.3
85	28.573	28.641	515.0	644.5	515.0	467.6	.0	443.5	.00	43.49	58.24	39.86	978.3	609.1	-831.9	-390.4	831.9	833.8
90	29.403	29.417	514.0	633.9	514.0	443.7	.0	452.7	.00	45.58	59.02	42.30	998.5	600.0	-856.0	-403.7	856.0	856.4
95	30.215	30.208	512.9	615.6	512.9	416.4	.0	453.4	.00	47.43	59.76	45.66	1018.2	595.8	-879.7	-426.1	879.7	879.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-.75	6.15	7.34	69.46	70.69	.0004	.3021	.1391	.0255	.0254	1.4212	.9360	.9328	.4598	.4134	.8261	.5431	.5329
10	.26	6.85	9.21	63.38	65.80	.0012	.3468	.0537	.0111	.0108	1.4284	.9732	.9718	.8583	.4230	.7949	.5702	.5182
15	1.03	7.23	9.91	60.19	62.91	.0030	.4144	.0455	.0102	.0095	1.4309	.9753	.9740	.9112	.4314	.7654	.5962	.4926
30	2.11	7.75	12.84	47.87	52.99	.0085	.5157	.0160	.0042	.0020	1.4324	.9891	.9885	.9764	.4502	.6930	.6685	.4569
50	3.22	8.19	13.82	33.05	38.69	.0107	.5458	.0125	.0035	.0005	1.4300	.9889	.9884	.9829	.4652	.6252	.7567	.4648
70	4.40	8.58	12.85	22.66	26.94	.0125	.5233	.0207	.0057	.0022	1.4295	.9783	.9772	.9719	.4716	.5821	.8388	.5119
85	4.79	8.45	9.68	18.38	19.60	.0153	.5350	.0764	.0204	.0163	1.4344	.9186	.9143	.9026	.4712	.5627	.8966	.5319
90	4.82	8.31	9.97	16.71	18.36	.0158	.5596	.1219	.0319	.0277	1.4302	.8714	.8648	.8510	.4702	.5514	.9147	.5219
95	4.65	8.00	11.45	14.10	17.52	.0166	.5753	.1584	.0399	.0357	1.4198	.8313	.8229	.8118	.4692	.5337	.9323	.5165

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1133	1.4295	94.90	95.15	33.79

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	824.2	506.8	472.6	503.2	675.2	-60.7	55.01	-6.87	-17.90	51.14	496.8	802.0	152.6	-624.6	522.6	563.9
10	18.665	19.908	814.7	496.5	512.5	495.1	633.2	-36.7	51.01	-4.24	-9.96	51.22	520.5	790.5	89.8	-616.3	543.4	579.6
15	19.362	20.485	805.0	517.7	523.5	517.4	611.6	-17.4	49.44	-1.93	-5.23	49.87	525.7	802.7	47.9	-613.7	563.7	596.4
30	21.439	22.268	777.4	555.2	553.4	555.1	545.9	-13.1	44.61	-1.36	8.05	50.00	558.9	863.5	-78.3	-661.4	624.2	648.3
50	24.186	24.672	743.2	546.3	566.2	546.2	481.4	-12.5	40.38	-1.31	21.47	53.22	608.4	912.3	-222.7	-730.7	704.1	718.3
70	26.928	27.186	714.1	546.7	565.5	546.2	436.2	-24.6	37.65	-2.58	31.59	56.21	663.9	982.0	-347.8	-816.1	784.0	791.5
85	28.974	29.120	702.7	549.8	550.0	549.3	437.4	-24.0	38.49	-2.50	36.45	57.78	683.7	1030.4	-406.2	-871.7	843.5	847.8
90	29.643	29.759	694.8	533.1	530.4	532.7	448.7	-20.8	40.23	-2.23	37.99	59.02	673.1	1034.8	-414.3	-887.1	863.0	866.4
95	30.316	30.402	679.5	500.4	507.7	499.8	451.6	-24.3	41.66	-2.78	40.33	61.21	665.9	1037.7	-431.0	-909.4	882.6	885.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-.49	2.03	9.53	61.88	69.41	.0017	.5780	.1625	.0360	.0356	.9508	.0000	.0000	.7824	.7352	.4385	.4454	.6938
10	-1.31	1.36	12.05	55.25	65.92	.0004	.5749	.1880	.0433	.0432	.9441	.0000	.0000	.7474	.7279	.4297	.4658	.6842
15	-.32	2.56	13.78	51.36	62.56	.0007	.5384	.1495	.0357	.0355	.9565	.0000	.0000	.7851	.7187	.4487	.4691	.6958
30	.64	4.26	10.16	45.96	51.87	.0010	.4713	.0517	.0136	.0133	.9858	.0000	.0000	.9126	.6917	.4830	.4976	.7512
50	-.11	4.51	6.71	41.68	43.88	.0027	.4593	.0493	.0146	.0138	.9875	.0000	.0000	.9096	.6587	.4750	.5397	.7933
70	-.97	4.65	6.46	40.23	42.04	.0027	.4459	.0538	.0177	.0168	.9873	.0000	.0000	.8895	.6308	.4752	.5863	.8535
85	-.84	5.53	8.68	40.99	44.14	.0073	.4503	.0728	.0259	.0233	.9835	.0000	.0000	.8368	.6173	.4761	.6006	.8922
90	-.07	6.49	9.17	42.46	45.16	.0131	.4782	.1076	.0391	.0344	.9762	.0000	.0000	.7692	.6078	.4597	.5890	.8924
95	.27	7.02	8.83	44.44	46.23	.0188	.5243	.1577	.0587	.0517	.9666	.0000	.0000	.6938	.5927	.4298	.5811	.8912

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
6672.	149.84	1.1133	1.3992	88.93	89.45

Table XIV(c) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

90% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	411.7	889.2	411.7	474.1	.0	752.3	.00	57.78	43.06	-31.03	563.5	553.3	-384.7	285.2	384.7	467.0
10	14.306	16.853	420.6	856.7	420.6	502.3	.0	694.0	.00	54.11	44.67	-22.10	591.5	542.3	-415.9	204.1	415.9	489.9
15	15.361	17.635	428.5	828.6	428.5	497.1	.0	642.9	.00	53.13	46.18	-16.79	618.9	519.6	-446.6	150.3	446.6	512.7
30	18.427	19.988	446.0	760.3	446.0	476.2	.0	592.7	.00	51.21	50.22	-1.39	697.0	477.0	-535.7	11.6	535.7	581.1
50	22.273	23.137	458.8	696.3	458.8	463.9	.0	519.3	.00	48.22	54.68	18.24	793.5	489.2	-647.5	-153.3	647.5	672.6
70	25.934	26.288	462.1	649.3	462.1	448.4	.0	469.5	.00	46.33	58.49	33.32	884.3	536.8	-753.9	-294.7	753.9	764.2
85	28.573	28.641	459.1	619.2	459.1	398.5	.0	473.9	.00	49.95	61.07	42.00	949.1	536.3	-830.6	-358.7	830.6	832.6
90	29.403	29.417	457.6	610.0	457.6	378.8	.0	478.1	.00	51.62	61.84	44.87	969.5	534.6	-854.8	-377.1	854.8	855.2
95	30.215	30.208	456.1	597.9	456.1	357.6	.0	479.2	.00	53.26	62.56	48.12	989.7	535.9	-878.4	-399.0	878.4	878.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	1.96	8.86	5.43	74.09	70.71	.0024	.3256	.1603	.0289	.0284	1.4176	.9329	.9295	.4594	.3743	.8018	.5131	.4990
10	2.99	9.57	8.55	66.77	65.82	.0044	.3642	.0590	.0121	.0112	1.4230	.9728	.9714	.8546	.3831	.7705	.5407	.4877
15	3.76	9.95	9.85	62.97	62.93	.0081	.4282	.0423	.0095	.0077	1.4258	.9788	.9777	.9200	.3907	.7424	.5675	.4655
30	4.86	10.48	11.87	51.60	53.03	.0166	.5494	.0358	.0095	.0051	1.4313	.9773	.9762	.9513	.4069	.6749	.6406	.4234
50	6.02	10.95	13.27	36.43	38.77	.0190	.5813	.0335	.0094	.0041	1.4362	.9735	.9721	.9579	.4183	.6132	.7293	.4308
70	7.23	11.38	13.13	25.18	26.93	.0210	.5674	.0574	.0157	.0099	1.4352	.9468	.9440	.9281	.4209	.5681	.8119	.4697
85	7.63	11.26	11.85	19.07	19.63	.0245	.6086	.1489	.0384	.0320	1.4303	.8572	.8499	.8250	.4179	.5373	.8685	.4654
90	7.62	11.10	12.57	16.97	18.39	.0251	.6231	.1794	.0450	.0386	1.4292	.8271	.8183	.7932	.4166	.5278	.8858	.4626
95	7.44	10.78	13.91	14.43	17.52	.0259	.6330	.2058	.0495	.0432	1.4259	.7999	.7897	.7666	.4153	.5159	.9029	.4623

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/A1 LBM/SEC SQFT
1.1167	1.4312	92.46	92.83	31.04

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	793.9	499.4	420.1	491.6	673.6	-67.5	58.05	-10.09	-19.86	52.92	446.8	815.4	151.8	-650.5	521.8	563.0
10	18.665	19.908	781.3	483.8	465.2	479.3	627.5	-66.3	53.45	-7.87	-10.37	53.39	473.1	803.6	84.9	-645.0	542.6	578.7
15	19.362	20.485	770.9	495.5	479.9	494.1	603.3	-34.4	51.50	-4.00	-4.82	51.89	481.6	800.7	40.4	-630.0	562.9	595.5
30	21.439	22.268	746.6	530.8	502.6	530.8	552.0	-5.2	47.69	-.56	8.06	50.88	507.7	841.1	-71.2	-652.6	623.2	647.3
50	24.186	24.672	720.2	522.3	521.9	522.3	496.2	-5.0	43.56	-.54	21.61	54.12	561.6	891.3	-206.9	-722.2	703.1	717.2
70	26.928	27.186	693.0	503.4	521.2	503.2	456.7	-12.3	41.23	-1.40	32.03	57.91	614.9	947.3	-326.1	-802.6	782.8	790.3
85	28.974	29.120	672.0	470.0	483.0	469.9	467.1	-11.5	44.04	-1.41	37.84	61.30	611.7	978.3	-375.2	-858.1	842.3	846.5
90	29.643	29.759	665.6	455.7	467.8	455.6	473.5	-9.6	45.34	-1.21	39.69	62.48	608.0	986.2	-388.3	-874.7	861.7	865.1
95	30.316	30.402	656.6	446.5	450.9	446.0	477.2	-21.1	46.62	-2.70	41.86	63.76	605.5	1008.8	-404.1	-904.9	881.3	883.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	2.53	5.05	6.31	68.14	69.41	.0054	.5787	.1746	.0304	.0372	.9505	.0000	.0000	.7564	.7051	.4319	.3991	.7052
10	1.14	3.80	8.40	61.32	65.91	.0015	.5803	.2058	.0471	.0467	.9431	.0000	.0000	.7126	.6956	.4186	.4214	.6953
15	1.70	4.57	11.70	55.50	62.55	.0018	.5497	.1812	.0431	.0427	.9511	.0000	.0000	.7342	.6865	.4291	.4278	.6934
30	3.70	7.29	10.95	48.25	51.87	.0042	.4815	.0814	.0214	.0203	.9793	.0000	.0000	.8608	.6624	.4606	.4489	.7299
50	3.08	7.68	7.47	44.10	43.88	.0089	.4782	.0697	.0206	.0180	.9834	.0000	.0000	.8743	.6363	.4526	.4950	.7724
70	2.51	8.11	7.67	42.63	42.12	.0109	.4954	.0908	.0299	.0263	.9799	.0000	.0000	.8371	.6097	.4351	.5407	.8188
85	4.69	11.06	9.77	45.45	44.14	.0329	.5530	.1527	.0542	.0426	.9683	.0000	.0000	.7370	.5865	.4031	.5338	.8391
90	5.02	11.57	10.20	46.55	45.16	.0436	.5790	.1835	.0668	.0509	.9627	.0000	.0000	.6929	.5794	.3896	.5291	.8433
95	5.31	12.05	8.91	49.33	46.23	.0558	.6025	.1947	.0725	.0517	.9615	.0000	.0000	.6744	.5698	.3808	.5249	.8604

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
6662.	137.69	1.1167	1.3912	84.81	85.50

Table XIV(d) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

95% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	576.8	1096.8	576.8	726.9	.0	821.3	.00	48.49	35.12	-24.34	705.2	797.9	-405.7	328.8	405.7	492.5
10	14.306	16.853	590.2	1070.7	590.2	723.9	.0	788.9	.00	47.46	36.61	-20.60	735.3	773.6	-438.6	272.3	438.6	516.6
15	15.361	17.635	602.3	1032.8	602.3	713.8	.0	746.3	.00	46.27	38.02	-16.05	764.6	743.3	-470.9	205.7	470.9	540.6
30	18.427	19.988	631.3	925.7	631.3	689.3	.0	617.8	.00	41.85	41.82	-.41	847.1	690.1	-564.9	5.0	564.9	612.7
50	22.273	23.137	653.2	822.8	653.2	656.4	.0	496.0	.00	37.06	46.27	17.99	944.9	691.3	-682.8	-213.3	682.8	709.3
70	25.934	26.288	659.7	730.8	659.7	608.3	.0	405.1	.00	33.66	50.32	33.36	1033.1	728.7	-795.0	-400.8	795.0	805.9
85	28.573	28.641	657.8	693.5	657.8	583.4	.0	374.9	.00	32.73	53.10	40.78	1095.4	770.5	-875.9	-503.1	875.9	878.0
90	29.403	29.417	656.2	668.9	656.2	555.3	.0	372.8	.00	33.89	53.94	43.62	1114.9	767.1	-901.4	-529.0	901.4	901.8
95	30.215	30.208	654.5	643.0	654.5	520.7	.0	377.2	.00	35.93	54.76	46.51	1134.1	756.5	-926.3	-548.8	926.3	926.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-5.97	.92	12.12	59.46	70.69	.0000	.1368	.1444	.0276	.0276	1.4827	.9217	.9172	1.9850	.5316	1.0144	.6508	.7380
10	-5.06	1.52	10.04	57.21	65.78	.0000	.2046	.0744	.0154	.0154	1.5103	.9580	.9555	-.6780	.5454	.9851	.6811	.7117
15	-4.40	1.79	10.57	54.07	62.88	.0004	.2716	.0605	.0136	.0135	1.5074	.9629	.9607	.7308	.5575	.9445	.7100	.6798
30	-3.53	2.09	12.84	42.23	52.99	.0025	.3855	.0435	.0115	.0108	1.4728	.9650	.9630	.9173	.5859	.8356	.7900	.6229
50	-2.37	2.57	13.03	28.28	38.78	.0040	.4269	.0435	.0123	.0111	1.4291	.9543	.9519	.9333	.6067	.7352	.8833	.6177
70	-.94	3.22	13.19	16.95	26.94	.0057	.4234	.0757	.0206	.0191	1.3690	.9007	.8962	.8910	.6123	.6483	.9639	.6464
85	-.34	3.31	10.59	12.32	19.60	.0084	.4156	.1051	.0276	.0254	1.3484	.8502	.8437	.8491	.6103	.6124	1.0192	.6804
90	-.25	3.23	11.30	10.33	18.37	.0094	.4303	.1498	.0371	.0347	1.3282	.7911	.7825	.7997	.6088	.5885	1.0365	.6749
95	-.35	2.99	12.30	8.25	17.52	.0109	.4528	.1942	.0482	.0455	1.3074	.7204	.7096	.7436	.6071	.5631	1.0535	.6625

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1142	1.4106	90.43	90.89	40.00

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	994.5	743.8	670.1	742.3	734.8	-45.9	47.63	-3.54	-15.39	40.75	695.1	979.9	184.5	-639.6	550.3	593.7
10	18.665	19.908	1002.9	771.7	705.9	770.8	712.4	-38.6	45.26	-2.86	-11.24	40.09	719.8	1007.5	140.2	-648.8	572.2	610.3
15	19.362	20.485	993.0	782.6	723.7	781.7	679.8	-38.2	43.21	-2.80	-6.80	40.44	729.1	1027.1	86.3	-666.2	593.5	628.0
30	21.439	22.268	949.0	762.0	754.0	761.3	576.1	-31.7	37.37	-2.38	6.13	43.17	758.8	1044.0	-81.1	-714.3	657.2	682.6
50	24.186	24.672	894.2	738.7	757.7	738.3	474.7	-23.3	32.06	-1.81	19.38	46.55	803.8	1073.9	-266.7	-779.6	741.4	756.3
70	26.928	27.186	825.8	689.2	725.0	687.9	395.4	-42.3	28.61	-3.52	30.67	51.85	843.1	1113.6	-430.1	-875.7	825.5	833.4
85	28.974	29.120	795.0	662.7	703.4	662.2	370.4	-26.2	27.77	-2.25	36.36	54.22	873.5	1132.7	-517.8	-918.9	888.2	892.7
90	29.643	29.759	773.7	631.4	679.8	631.2	369.5	-16.2	28.53	-1.47	38.43	55.80	867.8	1122.9	-539.3	-928.5	908.7	912.3
95	30.316	30.402	751.5	589.3	650.9	589.2	375.6	-11.6	29.99	-1.12	40.39	58.02	854.6	1112.4	-553.8	-943.5	929.3	932.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-7.75	-5.23	12.86	51.18	69.41	.0000	.4214	.1857	.0414	.0414	.9236	.0000	.0000	.6732	.9048	.6528	.6348	.8600
10	-7.00	-4.31	13.36	48.13	65.89	.0000	.3983	.1663	.0384	.0384	.9307	.0000	.0000	.6903	.9108	.6793	.6555	.8868
15	-6.49	-3.56	12.68	46.01	62.55	.0000	.3801	.1319	.0314	.0314	.9459	.0000	.0000	.7408	.8995	.6903	.6634	.9059
30	-6.75	-3.06	9.20	39.75	51.94	.0000	.3624	.0929	.0244	.0244	.9644	.0000	.0000	.8083	.8561	.6731	.6902	.9222
50	-8.49	-3.83	6.31	33.87	43.99	.0000	.3368	.0418	.0123	.0123	.9854	.0000	.0000	.9071	.8033	.6534	.7267	.9500
70	-10.14	-4.47	5.58	32.13	42.15	.0000	.3393	.0211	.0069	.0069	.9936	.0000	.0000	.9457	.7398	.6085	.7581	.9833
85	-11.61	-5.21	8.92	30.03	44.14	.0000	.3432	.0452	.0160	.0160	.9871	.0000	.0000	.8719	.7074	.5833	.7796	.9969
90	-11.72	-5.14	9.94	30.00	45.16	.0000	.3651	.0776	.0282	.0282	.9789	.0000	.0000	.7923	.6858	.5534	.7704	.9641
95	-11.45	-4.69	10.49	31.11	46.23	.0000	.4076	.1302	.0485	.0485	.9665	.0000	.0000	.7071	.6650	.5135	.7573	.9693

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7026.	179.16	1.1142	1.3748	83.35	84.09

Table XIV(d) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

95% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	505.4	979.7	505.4	569.6	.0	797.1	.00	54.45	38.74	-28.17	647.9	646.1	-405.5	305.0	405.5	492.1
10	14.306	16.853	516.5	947.6	516.5	586.1	.0	744.6	.00	51.79	40.31	-21.28	677.4	629.1	-438.3	228.3	438.3	516.3
15	15.361	17.635	526.5	916.6	526.5	574.8	.0	713.9	.00	51.16	41.79	-16.80	706.2	600.7	-470.6	173.7	470.6	540.2
30	18.427	19.988	550.4	833.3	550.4	565.7	.0	611.8	.00	47.24	45.72	.05	788.5	565.9	-564.5	-.5	564.5	612.3
50	22.273	23.137	570.1	750.6	570.1	540.3	.0	521.0	.00	43.96	50.12	19.15	889.1	572.2	-682.3	-187.8	682.3	708.8
70	25.934	26.288	579.0	704.5	579.0	530.8	.0	443.2	.00	41.11	53.92	32.80	983.1	631.6	-794.5	-342.2	794.5	805.3
85	28.573	28.641	579.4	686.0	579.4	513.1	.0	455.4	.00	41.59	56.50	39.44	1049.7	664.4	-875.3	-422.0	875.3	877.4
90	29.403	29.417	578.5	671.7	578.5	485.9	.0	463.8	.00	43.67	57.29	42.00	1070.5	653.8	-900.8	-437.4	900.8	901.2
95	30.215	30.208	577.3	652.5	577.3	456.5	.0	446.2	.00	45.60	58.05	45.17	1090.9	647.5	-925.6	-459.2	925.6	925.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-2.37	4.53	8.29	66.90	70.69	.0003	.2861	.1314	.0243	.0243	1.4755	.9368	.9332	.4335	.4625	.8897	.5934	.5868
10	-1.39	5.21	9.36	61.59	65.78	.0009	.3344	.0509	.0105	.0103	1.4869	.9738	.9723	.8599	.4735	.8573	.6221	.5691
15	-.64	5.56	9.84	58.59	62.90	.0025	.4019	.0423	.0095	.0089	1.4903	.9765	.9751	.9158	.4832	.8252	.6496	.5408
30	.36	6.00	13.29	45.66	52.97	.0074	.4953	.0024	.0006	-.0013	1.4872	.9985	.9984	.9950	.5061	.7429	.7268	.5045
50	1.43	6.41	14.12	30.97	38.69	.0098	.5335	.0111	.0031	.0004	1.4741	.9896	.9890	.9847	.5247	.6629	.8204	.5053
70	2.62	6.81	12.62	21.11	26.93	.0119	.5123	.0167	.0046	.0013	1.4749	.9815	.9804	.9772	.5330	.6186	.9066	.5546
85	3.05	6.71	9.26	17.06	19.60	.0149	.5179	.0646	.0173	.0133	1.4804	.9286	.9245	.9187	.5333	.5988	.9673	.5799
90	3.10	6.59	9.65	15.30	18.35	.0155	.5426	.1128	.0296	.0256	1.4717	.8766	.8698	.8647	.5324	.5838	.9861	.5682
95	2.95	6.30	10.96	12.88	17.52	.0165	.5604	.1528	.0388	.0346	1.4592	.8321	.8231	.8223	.5313	.5649	1.0046	.5606

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1238	1.4774	95.29	95.54	36.86

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	880.0	568.8	514.9	566.0	713.5	-55.3	54.18	-5.58	-17.63	48.89	540.5	860.9	163.6	-648.7	549.9	593.3
10	18.665	19.908	872.9	562.2	556.4	561.6	672.5	-24.8	50.40	-2.53	-10.27	48.49	565.5	847.5	100.7	-634.7	571.8	609.9
15	19.362	20.485	863.7	585.8	568.2	585.7	650.5	-8.4	48.86	-.82	-5.76	47.35	571.1	864.5	57.3	-635.9	593.1	627.6
30	21.439	22.268	833.0	612.3	607.1	612.2	570.5	-7.5	43.22	-.70	8.09	48.40	613.2	922.2	-86.3	-689.6	656.8	682.2
50	24.186	24.672	794.4	586.3	618.7	586.3	498.3	-6.9	38.85	-.67	21.41	52.45	664.6	962.0	-242.6	-762.7	740.9	755.8
70	26.928	27.186	769.2	584.0	622.7	583.9	451.6	-14.8	35.95	-1.45	30.95	55.44	726.0	1029.3	-373.4	-847.6	824.9	832.8
85	28.974	29.120	759.2	583.7	611.9	583.6	449.4	-9.4	36.30	-.92	35.61	57.08	752.6	1073.9	-438.2	-901.5	887.6	892.1
90	29.643	29.759	748.2	563.3	590.3	563.1	459.8	-13.3	37.92	-1.36	37.22	58.67	741.2	1082.9	-448.3	-924.9	908.1	911.7
95	30.316	30.402	732.7	522.7	566.7	521.8	464.4	-29.9	39.33	-3.29	39.33	61.51	732.7	1093.8	-464.3	-961.3	928.7	931.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-1.32	1.20	10.82	59.76	69.41	.0022	.5422	.1670	.0371	.0366	.9439	.0000	.0000	.7665	.7862	.4916	.4852	.7441
10	-1.91	.76	13.76	52.93	65.92	.0008	.5348	.1896	.0437	.0435	.9371	.0000	.0000	.7327	.7809	.4862	.5066	.7329
15	-.88	2.00	14.88	49.68	62.55	.0013	.4988	.1452	.0346	.0343	.9527	.0000	.0000	.7794	.7718	.5075	.5102	.7490
30	-.76	2.87	10.84	43.92	51.89	.0010	.4440	.0484	.0127	.0125	.9851	.0000	.0000	.9156	.7423	.5326	.5470	.8022
50	-1.64	2.98	7.34	39.52	43.88	.0022	.4479	.0421	.0124	.0118	.9881	.0000	.0000	.9241	.7050	.5092	.5907	.8355
70	-2.66	2.97	7.60	37.40	42.03	.0021	.4394	.0404	.0133	.0126	.9892	.0000	.0000	.9200	.6804	.5069	.6424	.8933
85	-3.03	3.35	10.26	37.22	44.14	.0048	.4454	.0594	.0211	.0194	.9846	.0000	.0000	.8743	.6678	.5045	.6620	.9283
90	-2.38	4.19	10.05	39.28	45.15	.0084	.4769	.0879	.0320	.0289	.9780	.0000	.0000	.8230	.6551	.4847	.6492	.9320
95	-2.07	4.68	8.33	42.62	46.23	.0123	.5378	.1474	.0549	.0503	.9645	.0000	.0000	.7379	.6394	.4475	.6399	.9364

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7021.	163.46	1.1238	1.4455	89.67	90.19

Table XIV(d) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

Rotor

95% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	445.1	937.1	445.1	497.2	.0	794.4	.00	57.96	42.39	-31.20	602.7	581.3	-406.4	301.1	406.4	493.2
10	14.306	16.853	454.8	903.1	454.8	529.5	.0	731.6	.00	54.10	44.00	-22.01	632.3	571.3	-439.2	214.2	439.2	517.4
15	15.361	17.635	463.5	873.7	463.5	526.0	.0	697.6	.00	52.98	45.49	-16.51	661.3	548.9	-471.6	156.1	471.6	541.4
30	18.427	19.988	483.1	801.7	483.1	505.5	.0	622.2	.00	50.90	49.50	-.96	744.0	506.1	-565.8	8.5	565.8	613.7
50	22.273	23.137	497.6	734.6	497.6	488.1	.0	548.9	.00	48.35	53.96	18.26	845.7	514.7	-683.8	-161.4	683.8	710.4
70	25.934	26.288	501.9	684.9	501.9	473.5	.0	494.7	.00	46.26	57.78	33.41	941.2	567.5	-796.2	-312.4	796.2	807.1
85	28.573	28.641	499.3	663.1	499.3	432.4	.0	502.7	.00	49.31	60.35	41.07	1009.4	573.5	-877.3	-376.7	877.3	879.4
90	29.403	29.417	497.8	653.7	497.8	406.4	.0	511.9	.00	51.56	61.13	43.91	1030.9	564.3	-902.8	-391.3	902.8	903.2
95	30.215	30.208	496.3	640.0	496.3	381.6	.0	513.8	.00	53.40	61.86	47.30	1052.1	562.9	-927.7	-413.7	927.7	927.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.28	8.18	5.27	73.59	70.71	.0028	.3391	.1664	.0299	.0294	1.4702	.9293	.9254	.5040	.4054	.8455	.5495	.5245
10	2.30	8.89	8.63	66.01	65.80	.0049	.3735	.0597	.0123	.0113	1.4774	.9722	.9707	.8635	.4150	.8124	.5785	.5139
15	3.07	9.26	10.14	62.01	62.92	.0088	.4336	.0378	.0085	.0065	1.4813	.9810	.9799	.9316	.4235	.7828	.6067	.4918
30	4.14	9.77	12.30	50.46	53.01	.0175	.5495	.0279	.0074	.0027	1.4881	.9823	.9812	.9628	.4420	.7111	.6845	.4489
50	5.29	10.24	13.26	35.70	38.74	.0205	.5875	.0348	.0098	.0040	1.4939	.9725	.9709	.9578	.4551	.6455	.7784	.4523
70	6.50	10.67	13.23	24.37	26.94	.0231	.5698	.0548	.0149	.0086	1.4930	.9492	.9463	.9334	.4586	.5977	.8655	.4953
85	6.91	10.55	10.89	19.28	19.60	.0271	.6050	.1382	.0362	.0291	1.4974	.8690	.8614	.8412	.4561	.5738	.9258	.4963
90	6.92	10.39	11.60	17.21	18.38	.0278	.6283	.1786	.0455	.0384	1.4959	.8311	.8214	.8007	.4547	.5635	.9445	.4864
95	6.74	10.08	13.09	14.55	17.52	.0288	.6410	.2081	.0509	.0438	1.4911	.8016	.7903	.7721	.4533	.5498	.9627	.4835

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/AI LBM/SEC SQFT
1.1304	1.4904	92.63	93.03	33.16

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	838.9	500.1	444.9	490.5	711.1	-97.8	57.96	-11.27	-19.78	54.69	473.1	848.5	160.0	-692.4	551.1	594.7
10	18.665	19.908	825.8	485.3	493.4	479.6	662.0	-73.9	53.30	-8.76	-10.26	55.01	501.7	836.3	89.0	-685.2	573.1	611.2
15	19.362	20.485	815.1	497.0	510.9	495.2	635.1	-39.3	51.19	-4.56	-4.55	53.46	512.5	831.8	40.6	-668.2	594.5	628.9
30	21.439	22.268	789.5	540.5	536.3	540.4	579.4	2.5	47.21	.25	8.36	51.58	542.1	869.6	-78.8	-681.2	658.2	683.7
50	24.186	24.672	761.4	544.5	551.8	544.5	524.6	-.3	43.56	-.03	21.55	54.30	593.3	933.2	-218.0	-757.8	742.6	757.5
70	26.928	27.186	730.3	530.1	549.5	529.8	481.0	-14.9	41.19	-1.61	32.18	58.05	649.3	1001.3	-345.8	-849.6	826.8	834.7
85	28.974	29.120	717.2	519.5	519.0	519.5	495.0	1.9	43.65	.21	37.25	59.79	652.0	1032.4	-394.6	-892.1	889.6	894.1
90	29.643	29.759	711.0	505.3	498.5	505.3	506.9	2.7	45.48	.31	38.97	60.98	641.3	1041.8	-403.3	-911.0	910.1	913.7
95	30.316	30.402	700.5	492.9	478.3	492.8	511.7	-8.9	46.93	-1.04	41.22	62.39	635.9	1063.5	-419.1	-942.4	930.8	933.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	2.48	4.99	5.13	69.23	69.41	.0075	.6128	.1820	.0398	.0382	.9437	.0000	.0000	.7645	.7446	.4300	.4218	.7295
10	1.02	3.69	7.50	62.06	65.89	.0025	.6127	.2130	.0486	.0480	.9357	.0000	.0000	.7226	.7351	.4175	.4461	.7195
15	1.38	4.24	11.14	55.74	62.55	.0027	.5827	.1943	.0462	.0456	.9427	.0000	.0000	.7365	.7259	.4281	.4546	.7164
30	3.19	6.76	11.77	46.96	51.86	.0051	.5037	.0958	.0282	.0238	.9733	.0000	.0000	.8495	.7006	.4668	.4784	.7510
50	3.08	7.66	8.03	43.59	43.93	.0116	.4863	.0707	.0209	.0174	.9816	.0000	.0000	.8788	.6721	.4699	.5215	.8052
70	2.46	8.06	7.44	42.80	42.07	.0134	.4967	.0912	.0300	.0256	.9780	.0000	.0000	.8438	.6413	.4564	.5697	.8621
85	4.23	10.59	11.39	43.43	44.14	.0347	.5193	.1329	.0472	.0349	.9693	.0000	.0000	.7665	.6249	.4442	.5685	.8627
90	5.13	11.68	11.71	45.17	45.16	.0500	.5468	.1642	.0598	.0416	.9629	.0000	.0000	.7134	.6172	.4303	.5565	.8870
95	5.64	12.38	10.58	47.97	46.23	.0642	.5730	.1798	.0670	.0431	.9606	.0000	.0000	.6854	.6057	.4184	.5490	.9027

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7037.	147.05	1.1304	1.4447	85.03	85.78

Table XIV(e) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

Rotor

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	599.0	1153.5	599.0	755.0	.0	872.0	.00	49.11	35.50	-25.08	735.8	833.6	-427.3	353.3	427.3	518.7
10	14.306	16.853	613.1	1125.2	613.1	753.3	.0	835.8	.00	47.97	36.99	-21.16	767.6	806.0	-461.9	291.7	461.9	544.1
15	15.361	17.635	625.9	1087.2	625.9	740.0	.0	796.4	.00	47.10	38.39	-17.03	798.6	774.5	-495.9	227.1	495.9	569.4
30	18.427	19.988	656.3	968.8	656.3	713.1	.0	655.7	.00	42.58	42.19	-.80	885.8	714.2	-594.9	10.3	594.9	645.3
50	22.273	23.137	679.0	840.4	679.0	664.2	.0	514.7	.00	37.75	46.64	19.25	989.0	704.9	-719.1	-232.3	719.1	747.0
70	25.934	26.288	685.8	751.3	685.8	623.7	.0	419.0	.00	33.89	50.68	34.55	1082.3	757.6	-837.3	-429.7	837.3	848.7
85	28.573	28.641	683.8	718.1	683.8	599.8	.0	394.8	.00	33.36	53.45	41.46	1148.3	800.5	-922.5	-529.9	922.5	924.7
90	29.403	29.417	682.1	693.9	682.1	570.4	.0	394.9	.00	34.71	54.30	44.22	1169.0	795.9	-949.3	-554.9	949.3	949.8
95	30.215	30.208	680.2	666.1	680.2	531.1	.0	402.1	.00	37.13	55.11	47.19	1189.2	781.4	-975.5	-573.2	975.5	975.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-5.59	1.31	11.38	60.58	70.69	.0001	.1400	.1503	.0286	.0286	1.5485	.9213	.9164	2.0050	.5533	1.0697	.6804	.7731
10	-4.68	1.90	9.48	58.15	65.78	.0004	.2079	.0762	.0157	.0156	1.5797	.9585	.9558	-.6050	.5679	1.0374	.7126	.7449
15	-4.02	2.17	9.60	55.42	62.88	.0013	.2792	.0646	.0144	.0142	1.5801	.9619	.9594	.7287	.5808	.9955	.7435	.7092
30	-3.15	2.46	12.44	42.99	52.99	.0047	.3970	.0530	.0140	.0128	1.5329	.9587	.9562	.9049	.6111	.8740	.8291	.6443
50	-1.99	2.95	14.29	27.40	38.78	.0069	.4445	.0752	.0211	.0191	1.4553	.9219	.9177	.8940	.6325	.7488	.9277	.6280
70	-.57	3.59	14.38	16.13	26.94	.0095	.4271	.0873	.0235	.0209	1.3987	.8870	.8815	.8794	.6386	.6650	1.0131	.6706
85	.02	3.66	11.28	11.99	19.60	.0152	.4225	.1204	.0313	.0274	1.3817	.8334	.8256	.8345	.6363	.6323	1.0719	.7048
90	.11	3.58	11.90	10.09	18.38	.0172	.4387	.1622	.0411	.0367	1.3608	.7740	.7639	.7651	.6346	.6084	1.0902	.6979
95	.00	3.35	12.98	7.93	17.52	.0198	.4647	.2166	.0530	.0482	1.3371	.6998	.6873	.7268	.6328	.5809	1.1081	.6815

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/AI LBM/SEC SQFT
1.1265	1.4518	88.91	89.47	41.40

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	1045.1	773.9	695.2	772.3	780.3	-49.1	48.30	-3.64	-16.10	41.13	723.6	1025.3	200.7	-674.4	579.6	625.3
10	18.665	19.908	1052.8	801.3	734.0	800.5	754.6	-34.6	45.79	-2.48	-11.70	40.24	747.7	1048.7	152.0	-677.4	602.6	642.8
15	19.362	20.485	1044.3	817.8	751.2	817.1	725.3	-32.9	43.99	-2.30	-7.60	40.35	758.2	1072.2	100.2	-694.2	625.1	661.4
30	21.439	22.268	991.4	778.4	780.4	778.1	611.2	-19.5	38.06	-1.44	5.91	43.50	785.2	1072.9	-81.0	-738.5	692.2	718.9
50	24.186	24.672	913.3	745.2	769.1	744.9	492.4	-20.7	32.62	-1.60	20.54	47.64	822.0	1106.1	-288.4	-817.3	780.9	796.6
70	26.928	27.186	847.7	701.7	742.6	700.8	409.0	-35.2	28.84	-2.87	31.79	52.49	873.9	1150.9	-460.4	-912.9	869.4	877.7
85	28.974	29.120	820.7	682.5	722.1	682.3	390.0	-16.5	28.38	-1.38	37.07	54.51	905.0	1175.1	-545.4	-956.7	935.5	940.2
90	29.643	29.759	800.1	650.4	697.9	650.4	391.3	-7.2	29.29	-.63	39.04	56.11	898.4	1166.4	-565.7	-966.0	957.1	960.8
95	30.316	30.402	776.7	603.8	665.6	603.8	400.3	-4.0	31.02	-.38	40.99	58.51	881.9	1155.8	-578.5	-985.6	978.8	981.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-7.11	-4.58	12.76	51.94	69.41	.0000	.4307	.1997	.0445	.0445	.9120	.0000	.0000	.6648	.9514	.6766	.6616	.8965
10	-6.42	-3.72	13.74	48.27	65.89	.0000	.4069	.1839	.0424	.0424	.9180	.0000	.0000	.6731	.9568	.7027	.6831	.9196
15	-5.70	-2.76	13.39	46.29	62.56	.0000	.3857	.1463	.0349	.0349	.9356	.0000	.0000	.7247	.9457	.7189	.6902	.9426
30	-4.07	-2.28	10.13	39.49	51.93	.0000	.3790	.1336	.0351	.0351	.9456	.0000	.0000	.7455	.8917	.6843	.7126	.9432
50	-7.95	-3.30	6.54	34.22	44.01	.0001	.3484	.0536	.0158	.0158	.9808	.0000	.0000	.8856	.8188	.6564	.7419	.9742
70	-9.89	-4.23	6.22	31.72	42.16	.0000	.3441	.0329	.0108	.0108	.9895	.0000	.0000	.9161	.7584	.6176	.7844	1.0130
85	-10.99	-4.59	9.80	29.76	44.14	.0000	.3440	.0518	.0184	.0184	.9845	.0000	.0000	.8557	.7290	.5986	.8058	1.0306
90	-10.93	-4.35	10.78	29.92	45.16	.0000	.3680	.0854	.0311	.0311	.9756	.0000	.0000	.7770	.7074	.5678	.7953	1.0181
95	-10.40	-3.64	11.23	31.41	46.23	.0001	.4164	.1422	.0530	.0530	.9616	.0000	.0000	.6910	.6849	.5234	.7786	1.0019

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7399.	183.60	1.1265	1.4032	80.39	81.30

Table XIV(e) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

100% of Design Speed

Rotor

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	579.8	1073.6	579.8	662.7	.0	844.7	.00	51.88	36.38	-26.20	720.3	738.5	-427.3	326.1	427.3	518.6
10	14.306	16.853	593.2	1042.4	593.2	671.7	.0	797.1	.00	49.88	37.90	-20.64	751.8	717.9	-461.8	253.0	461.8	544.1
15	15.361	17.635	605.4	1006.6	605.4	668.4	.0	752.6	.00	48.39	39.32	-15.33	782.6	693.2	-495.9	183.3	495.9	569.3
30	18.427	19.988	635.2	909.5	635.2	648.5	.0	637.7	.00	44.52	43.12	.67	870.2	648.9	-594.9	-7.5	594.9	645.3
50	22.273	23.137	659.4	818.9	659.4	617.3	.0	538.0	.00	41.07	47.48	18.68	975.6	652.2	-719.0	-208.9	719.0	746.9
70	25.934	26.288	669.5	751.5	669.5	590.9	.0	464.3	.00	38.15	51.35	33.04	1072.0	705.1	-837.2	-384.4	837.2	848.6
85	28.573	28.641	669.8	724.7	669.8	570.0	.0	417.5	.00	38.14	54.01	39.93	1139.9	743.3	-922.4	-477.1	922.4	924.6
90	29.403	29.417	668.8	710.0	668.8	546.8	.0	452.9	.00	39.63	54.83	42.26	1161.2	738.8	-949.2	-496.8	949.2	949.6
95	30.215	30.208	667.6	687.3	667.6	514.8	.0	455.3	.00	41.49	55.61	45.28	1182.0	731.7	-975.4	-519.9	975.4	975.2

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-4.73	2.17	10.24	62.58	70.67	.0002	.2446	.1463	.0276	.0275	1.5302	.9234	.9187	.0112	.5341	.9831	.6638	.6763
10	-3.81	2.80	9.99	58.54	65.75	.0006	.2987	.0705	.0146	.0145	1.5503	.9609	.9584	.7634	.5475	.9501	.6948	.6543
15	-3.11	3.10	11.32	54.64	62.88	.0018	.3542	.0433	.0098	.0094	1.5519	.9742	.9726	.9000	.5597	.9127	.7247	.6286
30	-2.24	3.40	13.91	42.45	52.96	.0058	.4555	.0169	.0045	.0029	1.5352	.9871	.9863	.9736	.5890	.8147	.8089	.5812
50	-1.20	3.77	13.65	28.79	38.69	.0081	.4981	.0245	.0069	.0046	1.5134	.9759	.9745	.9676	.6127	.7256	.9093	.5778
70	.07	4.25	12.86	18.32	26.94	.0105	.4845	.0397	.0108	.0080	1.4882	.9537	.9511	.9492	.6222	.6612	.9987	.6209
85	.57	4.23	9.75	14.09	19.60	.0159	.4845	.0800	.0213	.0171	1.4833	.9030	.8975	.9005	.6225	.6338	1.0604	.6501
90	.64	4.13	9.91	12.68	18.35	.0129	.5017	.1199	.0314	.0267	1.4731	.8555	.8476	.8560	.6215	.6186	1.0798	.6435
95	.51	3.87	11.07	10.33	17.52	.0204	.5198	.1624	.0412	.0360	1.4550	.8039	.7934	.8115	.6203	.5960	1.0988	.6345

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/AI LBM/SEC SQFT
1.1327	1.5057	93.40	93.84	40.68

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	968.0	641.1	604.4	639.1	756.0	-49.8	51.36	-4.46	-16.28	46.57	629.8	929.6	176.5	-675.0	579.5	625.2
10	18.665	19.908	967.3	668.8	646.2	658.5	719.9	-21.7	48.09	-1.89	-10.29	45.26	656.7	935.4	117.3	-664.4	602.5	642.7
15	19.362	20.485	957.4	687.1	668.3	686.8	685.4	-19.4	45.72	-1.62	-5.17	44.74	671.2	967.0	60.4	-680.7	625.1	661.3
30	21.439	22.268	921.9	691.9	704.5	691.6	594.5	-20.8	40.16	-1.72	7.88	46.92	711.4	1012.7	-97.6	-739.7	692.1	718.9
50	24.186	24.672	879.6	671.3	713.3	671.2	514.7	-12.6	35.81	-1.07	20.45	50.31	761.5	1051.3	-266.1	-809.0	780.8	796.5
70	26.920	27.186	833.1	648.8	699.2	648.3	453.0	-26.1	32.94	-2.31	30.77	54.35	813.8	1112.2	-416.3	-903.8	869.3	877.6
85	28.974	29.120	813.2	643.3	682.5	643.1	442.1	-16.0	32.93	-1.42	35.86	56.07	842.1	1152.2	-493.3	-956.0	935.3	940.1
90	29.643	29.759	801.4	621.1	663.7	620.9	449.1	-14.0	34.09	-1.31	37.42	57.50	835.7	1155.9	-507.8	-974.7	956.9	960.7
95	30.316	30.402	782.6	575.5	637.7	574.9	453.5	-26.8	35.42	-2.67	39.47	60.31	826.1	1160.6	-525.1	-1008.2	978.7	981.4

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-4.13	-1.61	11.94	55.81	69.41	.0014	.5172	.1886	.0420	.0417	.9264	.0000	.0000	.7351	.8707	.5539	.5689	.8032
10	-4.21	-1.53	14.37	49.98	65.90	.0008	.4905	.1787	.0412	.0411	.9303	.0000	.0000	.7380	.8704	.5706	.5918	.8101
15	-4.00	-1.11	14.06	47.34	62.53	.0007	.4539	.1197	.0285	.0284	.9541	.0000	.0000	.8093	.8607	.5972	.6043	.8405
30	-3.86	-.20	9.86	41.88	51.94	.0004	.4217	.0463	.0122	.0121	.9832	.0000	.0000	.9204	.8257	.6033	.6400	.8830
50	-4.69	-.05	6.94	36.88	43.88	.0012	.4121	.0292	.0086	.0083	.9902	.0000	.0000	.9480	.7839	.5849	.6817	.9160
70	-5.71	-.06	6.77	35.25	42.08	.0007	.4097	.0288	.0095	.0092	.9912	.0000	.0000	.9381	.7397	.5646	.7241	.9679
85	-6.39	.01	9.76	34.35	44.14	.0015	.4086	.0420	.0149	.0144	.9878	.0000	.0000	.8978	.7174	.5578	.7434	.9991
90	-6.19	.39	10.10	35.39	45.15	.0026	.4350	.0743	.0270	.0261	.9790	.0000	.0000	.8365	.7035	.5362	.7345	.9978
95	-6.04	.72	8.94	38.09	46.23	.0041	.4931	.1366	.0509	.0493	.9631	.0000	.0000	.7450	.6852	.4939	.7245	.9960

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7399.	18.40	1.1327	1.4733	88.22	88.84

Table XIV(e) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

Rotor

100% of Design Speed

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	526.8	1016.4	526.8	575.5	.0	837.8	.00	55.51	38.98	-29.10	677.6	658.7	-426.3	320.4	426.3	517.4
10	14.306	16.853	538.5	982.3	538.5	599.1	.0	778.5	.00	52.42	40.55	-21.47	708.7	643.8	-460.7	235.7	460.7	542.8
15	15.361	17.635	549.1	950.1	549.1	589.7	.0	744.9	.00	51.63	42.02	-16.70	739.1	615.7	-494.7	176.9	494.7	568.0
30	18.427	19.988	574.6	865.1	574.6	576.0	.0	645.5	.00	48.26	45.92	-.17	826.1	576.1	-593.5	1.7	593.5	643.7
50	22.273	23.137	595.9	782.0	595.9	552.4	.0	553.4	.00	45.05	50.28	19.13	932.6	584.9	-717.3	-191.7	717.3	745.2
70	25.934	26.288	605.5	735.5	605.5	543.3	.0	495.9	.00	42.39	54.06	32.85	1031.6	646.7	-835.2	-350.8	835.2	846.6
85	28.573	28.641	605.6	718.0	605.6	521.8	.0	493.2	.00	43.39	56.65	39.44	1101.6	675.7	-920.2	-429.2	920.2	922.4
90	29.403	29.417	604.5	704.9	604.5	491.3	.0	505.4	.00	45.81	57.45	41.98	1123.5	661.0	-947.0	-442.0	947.0	947.4
95	30.215	30.208	603.1	686.9	603.1	459.6	.0	510.5	.00	48.00	58.21	45.17	1144.9	652.0	-973.1	-462.4	973.1	972.9

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-2.15	4.76	7.45	68.08	70.78	.0009	.3125	.1475	.0270	.0269	1.5283	.9300	.9257	.5034	.4827	.9223	.6211	.5978
10	-1.17	5.45	9.16	62.02	65.77	.0020	.3543	.0561	.0115	.0111	1.5413	.9715	.9697	.8652	.4943	.8881	.6512	.5820
15	-.42	5.80	9.96	58.71	62.90	.0043	.4186	.0426	.0095	.0086	1.5456	.9767	.9752	.9222	.5047	.8545	.6803	.5538
30	.56	6.21	13.07	46.09	52.96	.0105	.5171	.0101	.0027	-.0001	1.5455	.9932	.9928	.9053	.5293	.7695	.7623	.5125
50	1.59	6.57	14.10	31.15	38.68	.0135	.5521	.0134	.0037	-.0000	1.5371	.9879	.9871	.9827	.5497	.6885	.8620	.5150
70	2.77	6.96	12.67	21.21	26.93	.0161	.5310	.0209	.0057	.0013	1.5416	.9779	.9765	.9734	.5589	.6435	.9538	.5858
85	3.21	6.86	9.26	17.21	19.60	.0202	.5424	.0769	.0206	.0152	1.5506	.9190	.9139	.9092	.5589	.6236	1.0180	.5869
90	3.26	6.74	9.64	15.47	18.35	.0219	.5708	.1288	.0339	.0281	1.5429	.8663	.8579	.8548	.5578	.6092	1.0378	.5713
95	3.11	6.46	10.96	13.04	17.52	.0293	.5912	.1707	.0434	.0372	1.5314	.8228	.8119	.8134	.5565	.5910	1.0572	.5616

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1389	1.5412	94.69	95.01	38.03

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	910.7	556.6	516.6	550.9	749.9	-79.1	55.43	-8.17	-18.40	51.91	544.7	893.1	171.8	-702.9	578.1	623.8
10	18.665	19.908	901.8	547.5	563.4	545.0	704.0	-52.1	51.33	-5.46	-10.37	51.83	573.0	881.8	102.8	-693.3	601.1	641.2
15	19.362	20.485	891.5	566.3	578.3	565.6	678.5	-25.2	49.56	-2.56	-5.43	50.45	581.0	888.4	54.9	-685.0	623.6	659.8
30	21.439	22.268	861.3	609.7	616.2	609.7	601.8	-4.1	44.32	-.39	8.19	49.79	622.5	944.4	-88.7	-721.3	690.5	717.2
50	24.186	24.672	824.7	596.7	632.3	596.6	529.4	-12.1	39.94	-1.16	21.53	53.51	679.9	1003.4	-249.6	-806.7	778.9	794.6
70	26.928	27.186	799.0	601.1	636.3	600.8	483.2	-19.9	37.22	-1.90	31.11	56.14	743.2	1078.4	-384.0	-895.5	867.3	875.6
85	28.974	29.120	789.5	605.3	622.1	605.1	486.1	-11.5	38.00	-1.09	35.70	57.48	766.1	1125.8	-447.0	-949.3	933.2	937.9
90	29.643	29.759	779.7	586.1	597.7	586.0	500.6	-4.8	39.95	-.47	37.22	58.68	750.6	1127.6	-454.1	-963.2	954.7	958.4
95	30.316	30.402	765.2	549.6	571.9	549.2	508.5	-22.7	41.64	-2.37	39.29	61.27	738.9	1142.5	-467.9	-1001.9	976.4	979.1

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-.05	2.47	8.23	63.60	69.40	.0053	.5857	.1788	.0395	.0383	.9370	.0000	.0000	.7692	.8116	.4777	.4877	.7665
10	-.98	1.68	10.81	56.79	65.90	.0023	.5810	.2060	.0473	.0468	.9284	.0000	.0000	.7320	.6052	.4702	.5120	.7574
15	-.24	2.64	13.14	52.12	62.55	.0028	.5482	.1760	.0419	.0413	.9400	.0000	.0000	.7583	.7957	.4671	.5177	.7641
30	.36	3.96	11.13	44.71	51.87	.0029	.4735	.0638	.0168	.0160	.9795	.0000	.0000	.8965	.7664	.5270	.6526	.8163
50	-.55	4.06	6.89	41.10	43.93	.0051	.4685	.0470	.0139	.0124	.9860	.0000	.0000	.9196	.7301	.5154	.6017	.8667
70	-1.39	4.23	7.14	39.12	42.03	.0053	.4540	.0476	.0156	.0139	.9866	.0000	.0000	.9098	.7043	.5189	.6549	.9309
85	-1.33	5.05	10.09	39.09	44.14	.0112	.4568	.0704	.0250	.0210	.9807	.0000	.0000	.8568	.6914	.5200	.6709	.9673
90	-.34	6.22	10.93	40.43	45.15	.0185	.4838	.1014	.0369	.0301	.9730	.0000	.0000	.8005	.6792	.5009	.6539	.9637
95	.26	7.01	9.25	44.01	46.23	.0265	.5401	.1556	.0580	.0481	.9602	.0000	.0000	.7226	.6638	.4672	.6413	.9710

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7381.	168.65	1.1389	1.5012	88.61	89.23

Table XIV(e) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

100% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	510.9	1001.0	510.9	552.8	.0	834.5	.00	56.48	39.87	-29.77	665.8	637.1	-426.8	316.4	426.8	518.1
10	14.306	16.853	522.2	966.8	522.2	579.2	.0	774.0	.00	53.19	41.46	-21.69	696.8	623.5	-461.4	230.5	461.4	543.5
15	15.361	17.635	532.4	935.9	532.4	575.0	.0	738.4	.00	52.09	42.94	-16.44	727.2	599.6	-495.4	169.7	495.4	568.7
30	18.427	19.988	556.4	857.1	556.4	557.4	.0	651.1	.00	49.43	46.88	-.67	814.1	557.6	-594.3	6.5	594.3	644.6
50	22.273	23.137	576.2	775.1	576.2	536.6	.0	559.2	.00	46.18	51.26	19.20	920.9	560.4	-718.3	-186.9	718.3	746.2
70	25.934	26.288	584.9	730.2	584.9	530.3	.0	502.0	.00	43.43	55.03	33.11	1020.6	633.1	-836.4	-345.8	836.4	847.8
85	28.573	28.641	584.3	711.2	584.3	501.0	.0	504.7	.00	45.21	57.62	39.91	1091.1	653.2	-921.5	-419.0	921.5	923.7
90	29.403	29.417	583.0	700.1	583.0	471.0	.0	517.9	.00	47.72	58.41	42.45	1113.2	638.4	-948.2	-430.8	948.2	948.7
95	30.215	30.208	581.6	685.3	581.6	442.3	.0	523.5	.00	49.81	59.17	45.54	1134.8	631.5	-974.4	-450.7	974.4	974.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-1.26	5.65	6.83	69.65	70.83	.0015	.3316	.1536	.0280	.0277	1.5260	.9290	.9247	.5461	.4675	.9062	.6093	.5767
10	-.27	6.35	8.97	63.15	65.80	.0029	.3710	.0592	.0122	.0116	1.5378	.9706	.9687	.8686	.4786	.8721	.6392	.5625
15	.50	6.71	10.23	59.38	62.91	.0057	.4291	.0358	.0080	.0067	1.5440	.9810	.9798	.9367	.4886	.8404	.6685	.5384
30	1.52	7.16	12.58	47.54	52.97	.0129	.5348	.0129	.0034	.0000	1.5507	.9915	.9910	.9821	.5117	.7611	.7503	.4951
50	2.57	7.55	14.16	32.07	38.68	.0160	.5662	.0148	.0041	-.0004	1.5440	.9871	.9863	.9813	.5306	.6814	.8498	.4997
70	3.74	7.93	12.93	21.93	26.93	.0188	.5412	.0206	.0056	.0005	1.5510	.9789	.9776	.9740	.5388	.6379	.9423	.5530
85	4.18	7.83	9.73	17.71	19.60	.0228	.5623	.0901	.0240	.0179	1.5584	.9086	.9028	.8958	.5380	.6162	1.0067	.5659
90	4.22	7.70	10.12	15.96	18.36	.0244	.5911	.1407	.0367	.0304	1.5535	.8592	.8502	.8439	.5366	.6036	1.0265	.5605
95	4.06	7.41	11.33	13.63	17.52	.0267	.6098	.1792	.0452	.0385	1.5461	.8209	.8096	.8066	.5354	.5884	1.0458	.5422

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1407	1.5480	94.51	94.83	37.13

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	895.1	537.0	493.0	529.4	747.1	-90.4	56.58	-9.69	-18.84	53.49	521.2	889.7	168.1	-715.0	578.9	624.6
10	18.665	19.908	884.7	528.3	540.0	524.2	700.5	-65.0	52.37	-7.06	-10.39	53.44	549.4	880.2	98.6	-707.0	601.9	642.0
15	19.362	20.485	875.1	542.6	559.6	541.3	672.7	-33.7	50.24	-3.58	-4.94	52.06	561.8	880.5	48.3	-694.4	624.4	660.6
30	21.439	22.268	849.8	592.9	594.6	592.9	607.1	-1.6	45.60	-.16	8.06	50.52	600.6	932.5	-84.3	-719.7	691.4	718.1
50	24.186	24.672	812.9	582.6	612.0	582.5	535.0	-8.0	41.16	-.79	21.81	54.06	659.4	992.6	-245.0	-803.7	780.0	795.7
70	26.928	27.186	789.5	584.3	620.0	584.0	488.7	-18.9	38.25	-1.85	31.48	56.89	727.0	1069.2	-379.7	-895.6	868.4	876.7
85	28.974	29.120	779.9	584.0	601.0	584.0	497.0	-5.3	39.59	-.52	36.05	58.27	743.3	1110.4	-437.4	-944.4	934.4	939.1
90	29.643	29.759	772.2	566.6	577.4	566.6	512.8	-1.9	41.61	-.20	37.51	59.49	727.9	1116.2	-443.2	-961.7	956.0	959.7
95	30.316	30.402	761.0	539.0	554.3	538.8	521.4	-11.8	43.25	-1.25	39.46	61.50	717.9	1129.1	-456.3	-992.2	977.7	980.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.13	3.65	6.71	66.27	69.41	.0071	.6026	.1869	.0411	.0395	.9360	.0000	.0000	.7609	.7958	.4602	.4651	.7624
10	.07	2.74	9.18	59.43	65.88	.0031	.5971	.2125	.0487	.0480	.9285	.0000	.0000	.7256	.7884	.4532	.4895	.7550
15	.45	3.31	12.12	53.82	62.55	.0033	.5676	.1929	.0459	.0451	.9363	.0000	.0000	.7399	.7798	.4660	.4993	.7562
30	1.58	5.16	11.36	45.75	51.89	.0045	.4868	.0812	.0213	.0202	.9745	.0000	.0000	.8709	.7550	.5114	.5313	.8043
50	.69	5.27	7.32	41.95	43.99	.0073	.4787	.0556	.0164	.0143	.9838	.0000	.0000	.9056	.7187	.5022	.5813	.8557
70	-.33	5.27	7.19	40.10	42.03	.0073	.4706	.0578	.0190	.0166	.9841	.0000	.0000	.8947	.6949	.5033	.6384	.9210
85	.22	6.58	10.65	40.11	44.13	.0167	.4795	.0815	.0289	.0230	.9782	.0000	.0000	.8498	.6815	.5001	.6497	.9509
90	1.28	7.84	11.21	41.81	45.16	.0268	.5084	.1123	.0409	.0311	.9707	.0000	.0000	.7953	.6715	.4827	.6330	.9509
95	1.91	8.65	10.36	44.50	46.23	.0369	.5526	.1548	.0577	.0440	.9609	.0000	.0000	.7321	.6588	.4568	.6213	.9571

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7391.	164.66	1.1407	1.5045	87.98	88.65

Table XIV(e) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

100% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	505.2	995.4	505.2	545.2	.0	832.8	.00	56.79	40.22	-29.96	661.6	629.4	-427.2	314.3	427.2	518.5
10	14.306	16.883	514.3	961.2	516.3	576.6	.0	769.8	.00	53.21	41.80	-21.42	692.7	618.4	-461.8	225.8	461.8	544.0
15	15.361	17.635	526.4	931.1	526.4	571.0	.0	735.4	.00	52.17	43.28	-16.23	723.1	594.8	-495.8	166.2	495.8	569.2
30	18.427	19.988	550.1	854.0	550.1	551.1	.0	652.3	.00	49.81	47.23	-.74	810.2	551.3	-594.8	7.2	594.8	645.1
50	22.273	23.137	569.3	773.6	569.3	532.1	.0	561.5	.00	46.54	51.62	19.18	917.0	563.6	-718.9	-185.3	718.9	746.8
70	25.934	26.288	577.4	728.3	577.4	523.9	.0	505.9	.00	44.00	55.40	33.18	1016.9	626.1	-837.1	-342.6	837.1	848.5
85	28.573	28.641	576.3	708.1	576.3	491.6	.0	509.6	.00	46.03	58.00	40.17	1087.5	643.3	-922.2	-414.9	922.2	924.4
90	29.403	29.417	574.9	696.6	574.9	460.0	.0	522.8	.00	48.66	58.79	42.85	1109.6	627.5	-949.0	-426.6	949.0	949.6
95	30.215	30.208	573.5	681.4	573.5	434.1	.0	527.8	.00	50.86	59.54	46.05	1131.3	623.3	-975.2	-447.2	975.2	975.0

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-.91	6.00	6.66	70.17	70.84	.0017	.3384	.1541	.0280	.0277	1.5257	.9295	.9252	.5643	.4620	.9004	.6052	.5693
10	.08	6.70	9.24	63.22	65.79	.0033	.3731	.0522	.0107	.0101	1.5376	.9744	.9728	.8856	.4730	.8666	.6352	.5576
15	.86	7.06	10.44	59.51	62.91	.0063	.4315	.0297	.0067	.0052	1.5443	.9845	.9836	.9477	.4829	.8357	.6647	.5338
30	1.87	7.51	12.50	47.97	52.97	.0138	.5406	.0123	.0033	-.0004	1.5527	.9920	.9914	.9831	.5057	.7579	.7467	.4893
50	2.93	7.91	14.15	32.44	38.69	.0171	.5704	.0130	.0036	-.0012	1.5482	.9887	.9880	.9835	.5239	.6798	.8462	.4953
70	4.12	8.30	13.00	22.22	26.93	.0200	.5477	.0237	.0065	.0010	1.5546	.9762	.9747	.9706	.5314	.6357	.9387	.5466
85	4.56	8.21	9.99	17.03	19.60	.0241	.5714	.0970	.0258	.0193	1.5609	.9030	.8968	.8889	.5302	.6129	1.0029	.5568
90	4.60	8.08	10.52	15.96	18.36	.0255	.6012	.1484	.0385	.0318	1.5557	.8536	.8442	.8369	.5289	.5999	1.0226	.5405
95	4.44	7.79	11.64	13.70	17.52	.0278	.6172	.1831	.0460	.0390	1.5504	.8193	.8078	.8035	.5275	.5863	1.0418	.5347

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1414	1.5508	94.43	94.76	36.79

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	889.0	530.7	483.9	522.5	745.6	-92.9	57.01	-10.08	-18.96	53.96	512.1	888.0	166.2	-718.1	579.4	625.1
10	18.445	19.908	878.4	521.6	534.0	517.1	697.1	-66.7	62.55	-7.34	-10.11	63.91	542.9	877.8	94.7	-709.3	602.4	642.6
15	19.342	20.485	869.3	516.1	564.0	533.8	669.9	-34.3	50.41	-3.70	-4.64	62.80	564.0	876.8	44.9	-696.5	624.9	661.2
30	21.439	22.268	846.1	585.5	586.8	585.4	608.2	-1.7	46.02	-.17	8.12	50.90	592.9	928.3	-83.8	-720.5	692.0	718.7
50	24.186	24.672	809.6	579.2	605.8	579.1	537.0	-6.1	41.55	-.60	21.89	54.18	653.1	989.6	-243.6	-802.4	780.6	796.3
70	26.928	27.186	785.9	579.2	612.8	578.9	492.1	-17.8	38.77	-1.76	31.60	57.11	719.5	1046.2	-377.0	-895.3	869.1	877.5
85	28.974	29.120	776.6	576.8	591.6	576.8	501.6	-65.0	40.30	-.60	36.24	58.60	733.4	1107.1	-433.6	-944.9	935.2	939.9
90	29.643	29.788	767.3	559.0	566.4	559.0	517.6	-3.2	42.42	.32	37.79	59.68	716.7	1109.1	-439.8	-967.4	966.8	960.5
95	30.314	30.402	767.7	534.0	548.7	533.9	525.7	-13.3	43.93	-1.43	39.69	61.77	704.1	1128.8	-452.8	-994.6	998.5	981.3

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.56	9.08	6.32	67.09	69.40	.0079	.6073	.1887	.0415	.0397	.9361	.0000	.0000	.7590	.7896	.4546	.4566	.7607
10	.28	2.92	8.89	59.89	65.87	.0032	.6016	.2143	.0490	.0483	.9288	.0000	.0000	.7241	.7823	.4472	.4833	.7527
15	.60	3.47	12.00	54.11	62.55	.0033	.5728	.1962	.0467	.0459	.9359	.0000	.0000	.7370	.7743	.4594	.4937	.7528
30	1.99	5.57	11.35	46.19	51.90	.0051	.4932	.0884	.0232	.0219	.9725	.0000	.0000	.8611	.7504	.5046	.5240	.8001
50	1.09	5.67	7.51	42.16	43.99	.0082	.4808	.0585	.0173	.0149	.9831	.0000	.0000	.9009	.7154	.4990	.5750	.8526
70	.19	5.79	7.28	40.53	42.03	.0086	.4767	.0622	.0205	.0176	.9830	.0000	.0000	.8880	.6913	.4984	.6309	.9175
85	.90	7.27	10.67	40.80	44.13	.0197	.4878	.0876	.0311	.0241	.9769	.0000	.0000	.8423	.6771	.4934	.6405	.9469
90	2.10	8.65	11.23	42.10	45.16	.0315	.5138	.1160	.0422	.0308	.9701	.0000	.0000	.7915	.6665	.4764	.6225	.9437
95	2.60	9.34	10.19	45.36	46.23	.0418	.5600	.1596	.0595	.0439	.9600	.0000	.0000	.7259	.6553	.4522	.6129	.9558

WCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7397.	163.14	1.1414	1.5058	87.72	88.40

Table XIV(f) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

110% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	636.4	1282.5	636.4	801.0	.0	1001.6	.00	51.35	36.34	-28.40	790.1	910.7	-468.2	433.2	468.2	568.4
10	14.306	16.853	651.9	1251.7	651.9	818.9	.0	946.7	.00	49.14	37.82	-23.17	825.3	890.7	-506.1	350.4	506.1	596.2
15	15.361	17.635	666.3	1209.9	666.3	810.6	.0	898.1	.00	47.93	39.20	-18.68	859.9	855.9	-543.5	274.2	543.5	623.9
30	18.427	19.988	701.5	1071.3	701.5	771.4	.0	743.2	.00	43.92	42.90	-2.64	957.7	773.3	-651.9	36.1	651.9	707.2
50	22.273	23.137	727.3	909.7	727.3	703.2	.0	577.0	.00	39.35	47.29	18.92	1072.3	745.1	-788.0	-241.5	788.0	818.6
70	25.934	26.288	734.2	804.3	734.2	656.1	.0	465.3	.00	35.34	51.33	35.29	1175.1	804.4	-917.5	-464.7	917.5	930.0
85	28.573	28.641	730.7	756.6	730.7	616.5	.0	438.6	.00	35.44	54.14	42.99	1247.3	843.0	-1010.9	-574.7	1010.9	1013.3
90	29.403	29.417	728.5	730.1	728.5	584.3	.0	437.6	.00	36.85	55.00	45.92	1270.0	839.9	-1040.2	-603.1	1040.2	1040.7
95	30.215	30.208	726.2	703.8	726.2	547.9	.0	441.8	.00	38.88	55.81	48.85	1292.3	832.7	-1069.0	-627.0	1069.0	1068.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-4.78	2.13	8.20	64.74	70.81	.0011	.1391	.2540	.0469	.0467	1.6739	.8771	.8676	2.2582	.5894	1.1976	.7318	.8504
10	-3.87	2.74	7.46	60.99	65.74	.0023	.1951	.1259	.0256	.0251	1.7260	.9365	.9313	7.9669	.6054	1.1619	.7672	.6268
15	-3.22	2.99	7.97	57.88	62.87	.0046	.2463	.0938	.0208	.0197	1.7322	.9491	.9449	.5004	.6205	1.1141	.8024	.7882
30	-2.44	3.18	10.61	45.54	52.98	.0107	.4055	.0962	.0254	.0226	1.6611	.9305	.9252	.8347	.6567	.9668	.9012	.6979
50	-1.33	3.60	13.97	28.38	38.80	.0144	.4677	.1352	.0379	.0339	1.5352	.8683	.8601	.8256	.6817	.8072	1.0130	.6610
70	.10	4.25	15.10	16.04	26.93	.0241	.4455	.1401	.0373	.0308	1.4590	.8297	.8205	.8221	.6875	.7080	1.1080	.7080
85	.71	4.35	12.84	11.14	19.62	.0371	.4464	.1843	.0468	.0373	1.4257	.7597	.7475	.7693	.6837	.6610	1.1721	.7365
90	.80	4.27	13.61	9.08	18.39	.0412	.4606	.2225	.0548	.0445	1.4016	.7066	.6924	.7290	.6815	.6349	1.1919	.7304
95	.70	4.04	14.64	6.96	17.52	.0459	.4788	.2649	.0628	.0519	1.3787	.6500	.6340	.6873	.6793	.6088	1.2112	.7203

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1551	1.5370	84.21	85.13	43.04

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	1155.4	817.2	728.9	813.3	896.3	-78.6	50.88	-5.53	-19.72	43.21	774.5	1115.8	261.2	-763.8	635.1	685.2
10	18.665	19.908	1164.8	850.0	791.4	848.6	854.6	-48.8	47.20	-3.29	-13.80	41.59	814.9	1134.6	194.3	-753.1	660.3	704.3
15	19.362	20.485	1156.0	877.0	817.2	875.9	817.5	-43.5	45.01	-2.84	-9.21	41.25	828.2	1165.1	132.5	-768.2	685.0	724.7
30	21.439	22.268	1089.8	826.6	841.7	825.7	692.1	-38.7	39.41	-2.68	4.51	45.03	845.2	1168.4	-66.4	-826.5	758.5	787.8
50	24.186	24.672	983.7	773.0	814.2	772.3	551.7	-30.6	34.10	-2.27	20.44	49.46	870.1	1188.9	-304.0	-903.5	855.7	872.9
70	26.928	27.186	903.7	729.3	781.3	723.2	454.2	-40.0	30.17	-3.16	32.53	54.17	927.0	1235.6	-498.5	-1001.8	952.7	961.8
85	28.974	29.120	864.2	697.3	747.8	696.7	433.3	-28.5	30.09	-2.33	38.36	56.65	953.7	1267.5	-591.8	-1058.7	1025.1	1030.2
90	29.643	29.759	841.5	663.9	721.1	663.7	433.8	-18.6	31.04	-1.60	40.46	58.23	947.8	1260.6	-615.0	-1071.5	1048.7	1052.8
95	30.316	30.402	819.4	614.6	691.3	614.4	439.9	-12.3	32.47	-1.15	42.47	60.54	937.1	1249.5	-632.7	-1087.9	1072.5	1075.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-4.69	-2.16	10.87	56.41	69.41	.0091	.4750	.2226	.0494	.0474	.8880	.0000	.0000	.6795	1.0528	.7058	.7114	.9637
10	-5.04	-2.33	12.72	50.49	65.86	.0072	.4441	.2162	.0498	.0482	.8898	.0000	.0000	.6704	1.0607	.7378	.7457	.9848
15	-4.64	-1.69	12.86	47.85	62.56	.0069	.4146	.1722	.0411	.0394	.9131	.0000	.0000	.7197	1.0478	.7645	.7555	1.0157
30	-4.72	-1.01	8.85	42.09	51.89	.0036	.4146	.1664	.0437	.0428	.9228	.0000	.0000	.7255	.9766	.7200	.7656	1.0178
50	-6.52	-1.86	5.93	36.38	44.09	.0017	.3473	.0892	.0263	.0258	.9645	.0000	.0000	.8350	.8774	.6741	.7834	1.0368
70	-8.57	-2.90	5.94	33.33	42.18	.0002	.3778	.0624	.0205	.0204	.9783	.0000	.0000	.8630	.8040	.6316	.8283	1.0775
85	-9.27	-2.86	8.84	32.42	44.14	.0004	.3826	.0668	.0237	.0236	.9785	.0000	.0000	.8389	.7621	.6052	.8434	1.1000
90	-9.21	-2.63	9.81	32.63	45.16	.0005	.4063	.0950	.0346	.0344	.9709	.0000	.0000	.7811	.7387	.5734	.8335	1.0886
95	-8.96	-2.20	10.46	33.62	46.23	.0012	.4554	.1573	.0586	.0582	.9542	.0000	.0000	.6940	.7174	.5270	.8216	1.0715

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
8108.	190.85	1.1551	1.4619	73.86	75.21

Table XIV(f) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

110% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VD-1 FT/SEC	VD-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VD'-1 FT/SEC	VD'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	621.4	1141.8	621.4	660.7	.0	931.2	.00	54.64	37.09	-28.63	779.0	753.0	-469.8	360.9	469.8	570.3
10	14.306	16.853	636.1	1107.6	636.1	691.5	.0	865.2	.00	51.36	38.60	-21.10	814.0	741.5	-507.9	266.9	507.9	598.3
15	15.361	17.635	649.9	1072.5	649.9	693.8	.0	817.8	.00	49.69	40.00	-15.45	848.4	719.9	-545.3	191.8	545.3	626.0
30	18.427	19.988	683.7	978.2	683.7	672.1	.0	710.7	.00	46.60	43.73	-.09	946.3	672.4	-654.2	1.1	654.2	709.6
50	22.273	23.137	710.5	882.5	710.5	636.3	.0	611.6	.00	43.86	48.06	18.23	1063.0	670.5	-790.7	-209.8	790.7	821.4
70	25.934	26.288	719.7	813.7	719.7	606.0	.0	543.0	.00	41.86	51.99	32.77	1168.5	721.0	-920.7	-390.2	920.7	933.2
85	28.573	28.641	717.6	779.5	717.6	588.1	.0	533.6	.00	43.21	54.72	40.39	1242.5	745.9	-1014.3	-483.2	1014.3	1016.7
90	29.403	29.417	715.7	764.8	715.7	537.1	.0	544.3	.00	45.39	55.56	42.96	1265.6	734.0	-1043.8	-500.0	1043.8	1044.3
95	30.215	30.208	713.6	737.6	713.6	493.9	.0	547.8	.00	47.97	56.37	46.72	1288.3	720.5	-1072.6	-524.5	1072.6	1072.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-4.05	2.86	8.04	65.73	70.88	.0016	.3084	.1923	.0354	.0351	1.6447	.9031	.8959	.3725	.5741	1.0426	.7195	.6875
10	-3.14	3.49	9.59	59.70	65.80	.0030	.3433	.0820	.0169	.0163	1.6724	.9557	.9523	.8044	.5890	1.0072	.7536	.6742
15	-2.44	3.78	11.21	55.45	62.88	.0056	.3921	.0408	.0092	.0079	1.6825	.9767	.9748	.9239	.6030	.9700	.7875	.6511
30	-1.63	4.02	13.15	43.82	52.96	.0125	.4956	.0143	.0038	.0005	1.6815	.9895	.9886	.9799	.6374	.8723	.8840	.5996
50	-.61	4.35	13.20	29.83	38.69	.0163	.5430	.0338	.0095	.0049	1.6603	.9690	.9667	.9608	.6642	.7764	.9977	.5899
70	.72	4.89	12.60	19.21	26.94	.0256	.5356	.0630	.0173	.0102	1.6373	.9345	.9297	.9300	.6729	.7090	1.0971	.6282
85	1.29	4.93	10.20	14.34	19.60	.0386	.5491	.1263	.0334	.0232	1.6263	.8653	.8556	.8646	.6705	.6728	1.1644	.6438
90	1.37	4.85	10.64	12.60	18.37	.0428	.5722	.1724	.0446	.0335	1.6159	.8181	.8051	.8209	.6686	.6566	1.1852	.6301
95	1.26	4.60	12.51	9.64	17.52	.0477	.5940	.2181	.0539	.0421	1.5919	.7689	.7531	.7800	.6665	.6296	1.2053	.6150

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1673	1.6483	91.67	92.25	42.48

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VD-1 FT/SEC	VD-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VD'-1 FT/SEC	VD'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	1019.9	625.7	587.7	617.8	833.5	-98.3	54.81	-9.04	-18.47	51.83	619.9	999.7	196.2	-785.9	637.3	687.6
10	18.665	19.908	1015.8	622.6	648.4	618.8	781.6	-68.6	50.32	-6.32	-10.43	51.41	659.6	992.0	119.0	-775.3	662.6	706.7
15	19.362	20.485	1006.8	640.9	677.2	639.6	744.9	-38.7	47.73	-3.47	-4.86	50.14	679.7	997.9	57.6	-765.9	687.3	727.2
30	21.439	22.268	978.5	693.9	720.0	693.8	662.6	-11.6	42.62	-.96	7.79	49.14	726.8	1060.5	-98.5	-802.1	761.1	790.5
50	24.186	24.672	937.5	682.7	732.7	682.5	584.8	-15.3	38.59	-1.29	20.48	52.55	782.4	1122.5	-273.8	-891.2	858.6	875.9
70	26.928	27.186	892.0	657.1	718.1	656.5	529.2	-29.3	36.39	-2.56	30.72	56.57	835.4	1191.6	-426.7	-994.4	955.9	965.1
85	28.974	29.120	866.6	641.0	688.6	640.3	526.1	-27.8	37.38	-2.48	36.12	58.90	852.5	1239.8	-502.5	-1061.5	1028.6	1033.8
90	29.643	29.759	855.7	610.8	664.5	610.4	539.2	-22.8	39.06	-2.15	37.68	60.51	839.6	1240.0	-513.2	-1079.3	1052.3	1056.4
95	30.316	30.402	832.8	570.3	629.2	569.6	545.5	-28.9	40.92	-2.91	40.14	62.80	823.2	1246.0	-530.7	-1108.2	1076.2	1079.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-.69	1.82	7.36	63.85	69.40	.0096	.5843	.1972	.0435	.0413	.9179	.0000	.0000	.7550	.9105	.5326	.5561	.8510
10	-1.98	.69	9.94	56.64	65.90	.0047	.5750	.2270	.0521	.0510	.9059	.0000	.0000	.7141	.9092	.5308	.5903	.8457
15	-2.01	.86	12.23	51.20	62.55	.0041	.5444	.2032	.0484	.0474	.9168	.0000	.0000	.7314	.9014	.5477	.6066	.8528
30	-1.34	2.25	10.56	43.58	51.86	.0044	.4686	.0762	.0200	.0189	.9702	.0000	.0000	.8829	.8734	.5967	.6468	.9121
50	-1.89	2.72	6.72	39.88	43.88	.0077	.4591	.0344	.0101	.0079	.9875	.0000	.0000	.9446	.8312	.5867	.6936	.9647
70	-2.25	3.37	6.51	38.94	42.09	.0081	.4686	.0426	.0140	.0113	.9858	.0000	.0000	.9258	.7851	.5630	.7355	1.0208
85	-1.92	4.46	8.70	39.86	44.14	.0142	.4869	.0661	.0235	.0184	.9792	.0000	.0000	.8756	.7556	.5454	.7431	1.0550
90	-1.20	5.37	9.26	41.21	45.16	.0205	.5248	.1137	.0413	.0339	.9651	.0000	.0000	.8040	.7414	.5165	.7277	1.0485
95	-.48	6.27	8.71	43.83	46.23	.0284	.5720	.1483	.0552	.0446	.9568	.0000	.0000	.7641	.7182	.4793	.7106	1.0472

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
8136.	188.36	1.1673	1.5966	85.43	86.37

Table XIV(f) Performance with Uniform Inlet Flow, Nominal Stator, Solid Casing

110% of Design Speed

Rotor

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	618.5	1129.1	618.5	643.7	.0	927.7	.00	55.24	37.15	-29.11	776.1	737.1	-468.7	358.7	468.7	569.0
10	14.306	16.853	633.1	1094.5	633.1	675.5	.0	841.0	.00	51.87	38.67	-21.35	810.9	725.8	-506.7	264.1	506.7	596.9
15	15.361	17.635	646.6	1059.5	646.6	677.6	.0	814.6	.00	50.24	40.07	-15.66	845.0	703.9	-544.0	190.0	544.0	624.6
30	18.427	19.988	680.0	968.7	680.0	657.6	.0	711.3	.00	47.25	43.82	-.30	942.5	657.7	-652.6	3.4	652.6	707.9
50	22.273	23.137	707.4	879.4	707.4	629.2	.0	614.4	.00	44.31	48.11	18.04	1059.6	662.1	-788.8	-205.1	788.8	819.4
70	25.934	26.288	717.8	816.0	717.8	604.1	.0	548.5	.00	42.24	51.99	32.34	1165.7	715.2	-918.5	-382.5	918.5	931.0
85	28.573	28.641	716.0	782.8	716.0	564.0	.0	542.8	.00	43.91	54.72	39.90	1239.6	735.2	-1011.9	-471.6	1011.9	1014.4
90	29.403	29.417	714.2	770.7	714.2	536.0	.0	553.7	.00	45.94	55.56	42.33	1262.7	725.2	-1041.3	-488.2	1041.3	1041.8
95	30.215	30.208	712.2	745.4	712.2	494.3	.0	557.9	.00	48.46	56.35	46.00	1285.4	711.6	-1070.1	-512.0	1070.1	1069.9

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-4.00	2.92	7.66	66.26	70.98	.0016	.3251	.1884	.0345	.0343	1.6417	.9049	.8979	.4559	.5711	1.0291	.7162	.6718
10	-3.09	3.55	9.39	60.02	65.85	.0030	.3588	.0803	.0165	.0159	1.6672	.9564	.9531	.8233	.5856	.9935	.7496	.6588
15	-2.38	3.86	11.01	55.73	62.87	.0056	.4076	.0414	.0093	.0080	1.6768	.9761	.9742	.9270	.5993	.9567	.7832	.6355
30	-1.54	4.12	12.94	44.12	52.95	.0125	.5094	.0123	.0032	-.0000	1.6818	.9911	.9904	.9830	.6332	.8627	.8785	.5856
50	-.57	4.41	13.00	30.07	38.68	.0163	.5503	.0203	.0057	.0011	1.6727	.9811	.9796	.9758	.6610	.7732	.9926	.5821
70	.72	4.89	12.16	19.66	26.94	.0251	.5411	.0465	.0128	.0059	1.6584	.9518	.9481	.9481	.6710	.7108	1.0936	.6229
85	1.28	4.93	9.72	14.82	19.60	.0379	.5592	.1166	.0311	.0209	1.6490	.8779	.8688	.8765	.6689	.6752	1.1613	.6341
90	1.36	4.84	10.01	13.22	18.37	.0420	.5809	.1602	.0419	.0308	1.6422	.8342	.8219	.8352	.6671	.6613	1.1820	.6222
95	1.25	4.59	11.79	10.35	17.52	.0468	.6028	.2059	.0515	.0398	1.6201	.7864	.7712	.7944	.6651	.6359	1.2022	.6071

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1682	1.6610	92.70	93.22	42.38

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	1007.4	598.6	570.2	590.6	830.4	-97.5	55.52	-9.38	-18.86	52.99	603.0	981.2	194.6	-783.5	635.8	685.9
10	18.665	19.908	1001.7	597.5	630.1	593.0	778.3	-72.1	51.00	-6.93	-10.60	52.65	641.5	977.6	117.2	-777.2	661.0	705.1
15	19.362	20.485	992.3	614.5	658.7	612.9	742.1	-42.5	48.41	-3.98	-4.90	51.41	661.3	982.6	56.4	-768.0	685.7	725.5
30	21.439	22.268	966.0	669.3	702.2	669.2	663.3	-11.9	43.37	-1.03	7.78	50.11	708.8	1043.4	-96.0	-800.6	759.3	788.6
50	24.186	24.672	931.4	672.0	722.7	671.9	587.5	-12.8	39.11	-1.09	20.42	52.84	771.2	1112.4	-269.1	-886.5	856.6	873.8
70	26.928	27.186	891.9	658.2	714.2	657.6	534.2	-28.2	36.80	-2.46	30.42	56.43	828.3	1189.4	-419.5	-991.0	953.7	962.8
85	28.974	29.120	867.5	642.3	683.0	641.9	534.9	-23.2	38.06	-2.07	35.73	58.67	841.4	1234.5	-491.3	-1054.5	1026.2	1031.3
90	29.643	29.759	859.1	614.6	661.3	614.3	548.3	-20.8	39.66	-1.95	37.18	60.25	830.1	1238.0	-501.5	-1074.8	1049.8	1054.0
95	30.316	30.402	837.9	576.6	627.2	575.8	556.6	-29.6	41.54	-2.94	39.56	62.50	813.5	1247.2	-518.1	-1106.3	1073.7	1076.7

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	.06	2.58	7.03	64.90	69.40	.0109	.6052	.1986	.0437	.0413	.9189	.0000	.0000	.7596	.8976	.5086	.5394	.8336
10	-1.29	1.38	9.31	57.94	65.87	.0054	.5942	.2243	.0514	.0502	.9090	.0000	.0000	.7241	.8951	.5085	.5731	.8320
15	-1.34	1.52	11.72	52.39	62.55	.0047	.5645	.2037	.0485	.0474	.9185	.0000	.0000	.7379	.8871	.5242	.5890	.8362
30	-.62	2.96	10.49	44.40	51.89	.0052	.4874	.0851	.0223	.0210	.9674	.0000	.0000	.8733	.8610	.5743	.6288	.8953
50	-1.36	3.23	6.97	40.19	43.93	.0086	.4669	.0351	.0104	.0078	.9874	.0000	.0000	.9443	.8254	.5768	.6822	.9548
70	-1.84	3.78	6.60	39.25	42.06	.0092	.4687	.0350	.0115	.0085	.9883	.0000	.0000	.9408	.7849	.5637	.7288	1.0186
85	-1.26	5.13	9.11	40.13	44.14	.0170	.4877	.0621	.0220	.0160	.9804	.0000	.0000	.8848	.7559	.5461	.7330	1.0496
90	-.61	5.96	9.46	41.61	45.16	.0238	.5252	.1118	.0407	.0320	.9655	.0000	.0000	.8077	.7441	.5193	.7191	1.0460
95	.14	6.89	8.67	44.48	46.23	.0327	.5718	.1461	.0544	.0422	.9571	.0000	.0000	.7666	.7222	.4842	.7017	1.0474

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
8117.	187.93	1.1682	1.6105	86.67	87.54

Table XV(a) Performance with Uniform Inlet Flow, 10° Closed Stator, Solid Casing

Rotor

65% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	V'-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	294.6	652.9	294.6	357.9	.0	546.0	.00	56.75	43.45	-30.06	405.9	413.6	-279.1	207.2	279.1	338.8
10	14.306	16.853	300.9	636.8	300.9	367.3	.0	520.1	.00	54.76	45.08	-24.13	426.1	402.8	-301.7	164.6	301.7	355.4
15	15.361	17.635	306.3	616.9	306.3	373.3	.0	481.0	.00	52.75	46.60	-17.66	445.9	392.2	-324.0	119.1	324.0	371.9
30	18.427	19.988	318.4	565.0	318.4	367.9	.0	428.7	.00	49.35	50.67	-1.09	502.4	368.6	-388.6	7.1	388.6	421.6
50	22.273	23.137	326.4	514.5	326.4	358.3	.0	369.2	.00	45.85	55.21	18.28	572.0	378.0	-469.8	-118.7	469.8	488.0
70	25.934	26.288	328.1	481.9	328.1	350.6	.0	330.6	.00	43.33	59.04	32.56	637.8	416.1	-547.0	-223.9	547.0	554.4
85	28.573	28.641	325.9	455.9	325.9	313.5	.0	331.0	.00	46.56	61.59	41.06	685.1	415.8	-602.6	-273.1	602.6	604.1
90	29.403	29.417	324.8	445.8	324.8	295.9	.0	333.3	.00	48.41	62.36	44.13	700.0	412.5	-620.1	-287.1	620.1	620.4
95	30.215	30.208	323.7	431.8	323.7	277.1	.0	331.2	.00	50.08	63.07	47.83	714.7	412.8	-637.3	-306.0	637.3	637.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	2.37	9.26	6.41	73.51	70.73	.0000	.2909	.2362	.0430	.0430	1.1989	.8984	.8956	-.1742	.2662	.5873	.3677	.3721
10	3.41	9.97	6.53	69.20	65.84	.0001	.3470	.1412	.0285	.0285	1.2073	.9337	.9318	.5664	.2723	.5718	.3875	.3617
15	4.17	10.36	8.97	64.26	62.93	.0008	.3956	.0883	.0197	.0195	1.2096	.9544	.9531	.7923	.2774	.5531	.4064	.3516
30	5.32	10.92	12.16	51.76	53.04	.0039	.5009	.0481	.0127	.0117	1.2105	.9684	.9675	.9214	.2883	.5042	.4590	.3290
50	6.55	11.48	13.32	36.93	38.80	.0044	.5343	.0444	.0125	.0113	1.2085	.9626	.9616	.9341	.2951	.4573	.5220	.3360
70	7.78	11.93	12.38	26.48	26.93	.0046	.5179	.0575	.0158	.0145	1.2074	.9418	.9401	.9134	.2962	.4269	.5807	.3687
85	8.15	11.78	10.91	20.53	19.63	.0058	.5611	.1456	.0381	.0366	1.2020	.8449	.8407	.7967	.2941	.4022	.6217	.3668
90	8.14	11.61	11.83	18.22	18.39	.0059	.5793	.1790	.0455	.0439	1.1993	.8076	.8025	.7571	.2932	.3925	.6344	.3632
95	7.95	11.28	13.62	15.24	17.52	.0061	.5894	.2051	.0496	.0481	1.1946	.7751	.7692	.7272	.2922	.3796	.6468	.3629

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC
1.0603	1.2068	91.23	91.47	23.04

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	V'-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	586.9	351.0	325.1	350.8	488.6	12.8	56.36	2.09	-18.71	48.44	343.3	528.8	110.0	-395.7	378.6	408.5
10	18.665	19.908	587.0	375.9	351.4	375.3	470.2	22.0	53.23	3.35	-12.30	46.68	359.6	546.9	76.6	-397.8	393.7	419.9
15	19.362	20.485	580.9	398.4	370.5	395.8	447.3	45.3	50.36	6.52	-6.01	44.34	372.6	553.4	39.0	-386.8	408.4	432.0
30	21.439	22.268	560.8	412.9	393.5	410.0	399.6	48.5	45.44	6.74	7.60	45.76	397.1	587.8	-52.6	-421.2	452.2	469.6
50	24.186	24.672	534.4	401.6	401.2	397.9	353.0	54.6	41.34	7.82	21.37	49.49	431.0	612.6	-157.1	-465.7	510.1	520.3
70	26.928	27.186	514.3	399.9	401.2	397.3	321.7	45.4	38.73	6.51	31.54	53.04	470.8	660.8	-246.2	-528.0	567.9	573.4
85	28.974	29.120	494.6	385.3	371.6	381.5	326.4	53.8	41.30	8.03	37.46	55.75	468.2	677.9	-284.7	-560.3	611.1	614.2
90	29.643	29.759	486.6	374.4	357.3	369.7	330.3	59.0	42.76	9.06	39.54	56.97	463.3	678.4	-294.9	-568.6	625.2	627.6
95	30.316	30.402	474.4	340.5	341.0	337.0	329.8	48.6	44.04	8.21	42.23	60.37	460.6	681.7	-309.6	-592.6	639.4	641.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-9.12	-6.62	8.52	54.27	69.43	.0000	.5756	.1885	.0421	.0421	.9678	.0000	.0000	.7313	.5243	.3083	.3071	.4644
10	-9.07	-6.41	9.62	49.88	65.90	.0000	.5295	.1624	.0374	.0374	.9722	.0000	.0000	.7490	.5245	.3307	.3205	.4811
15	-9.37	-6.50	12.22	43.85	62.56	.0000	.4736	.1084	.0257	.0257	.9818	.0000	.0000	.8133	.5194	.3510	.3322	.4876
30	-8.53	-4.92	8.29	38.69	51.90	.0000	.4242	.0392	.0102	.0102	.9938	.0000	.0000	.9231	.5004	.3642	.3542	.5185
50	-9.12	-4.53	5.83	33.52	43.88	.0000	.4110	.0311	.0091	.0091	.9955	.0000	.0000	.9360	.4761	.3540	.3829	.5400
70	-10.06	-4.48	5.57	32.22	42.11	.0000	.3982	.0149	.0049	.0049	.9980	.0000	.0000	.9812	.4578	.3524	.4184	.5823
85	-8.08	-1.72	9.21	33.26	44.14	.0000	.4161	.0245	.0086	.0086	.9970	.0000	.0000	.9543	.4381	.3383	.4146	.5953
90	-7.57	-1.01	10.47	33.70	45.16	.0000	.4330	.0435	.0156	.0156	.9948	.0000	.0000	.9036	.4301	.3282	.4093	.5947
95	-7.32	-.57	9.82	35.84	46.23	.0000	.5028	.1217	.0449	.0449	.9862	.0000	.0000	.7645	.4183	.2977	.4061	.5961

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
4834.	102.18	1.0603	1.1961	87.20	87.53

Table XV(b) Performance with Uniform Inlet Flow, 10° Closed Stator, Solid Casing

80% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	433.5	841.1	433.5	494.1	.0	680.6	.00	54.02	38.23	-28.30	551.8	561.3	-341.5	266.1	341.5	414.5
10	14.306	16.853	442.6	825.7	442.6	474.6	.0	675.6	.00	54.92	39.83	-26.89	576.3	532.2	-369.1	240.7	369.1	434.9
15	15.361	17.635	451.0	799.3	451.0	506.6	.0	617.8	.00	50.63	41.30	-17.83	600.5	533.0	-396.4	162.8	396.4	455.0
30	18.427	19.988	472.1	734.9	472.1	529.3	.0	509.8	.00	43.92	45.20	.64	670.1	529.6	-475.5	-6.9	475.5	515.8
50	22.273	23.137	489.0	664.5	489.0	507.8	.0	428.6	.00	40.16	49.60	18.35	754.6	535.1	-574.7	-168.5	574.7	597.0
70	25.934	26.288	496.1	618.5	496.1	501.5	.0	361.9	.00	35.82	53.45	32.24	833.0	593.0	-669.2	-316.9	669.2	678.3
85	28.573	28.641	495.5	601.0	495.5	488.5	.0	350.1	.00	35.63	56.09	38.53	888.3	624.5	-737.3	-389.0	737.3	739.0
90	29.403	29.417	494.3	579.5	494.3	461.0	.0	351.0	.00	37.32	56.92	41.55	905.5	615.9	-758.7	-408.1	758.7	759.1
95	30.215	30.208	492.8	540.8	492.8	406.2	.0	357.0	.00	41.32	57.71	46.13	922.3	586.1	-779.7	-422.4	779.7	779.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-2.91	4.00	8.41	66.52	70.93	.0000	.2666	.3149	.0582	.0582	1.2896	.8380	.8321	.8792	.3941	.7618	.5017	.5084
10	-1.95	4.68	8.88	66.72	65.90	.0000	.3571	.2689	.0530	.0530	1.3101	.8561	.8504	.2259	.4025	.7449	.5240	.4801
15	-1.19	5.06	8.82	59.13	62.88	.0001	.3690	.1540	.0342	.0342	1.3159	.9081	.9045	.6167	.4103	.7201	.5459	.4602
30	-.17	5.49	13.88	44.56	52.96	.0013	.4184	.0174	.0046	.0042	1.3230	.9848	.9863	.9667	.4306	.6589	.6116	.4748
50	.91	5.89	13.31	31.26	38.68	.0021	.4625	.0196	.0055	.0049	1.3112	.9805	.9798	.9684	.4468	.5917	.6910	.4765
70	2.16	6.35	12.06	21.21	26.93	.0028	.4308	.0048	.0013	.0006	1.3019	.9933	.9931	.9906	.4533	.5491	.7629	.5265
85	2.65	6.30	8.35	17.56	19.60	.0040	.4341	.0459	.0125	.0114	1.3006	.9407	.9384	.9267	.4526	.5315	.8134	.5524
90	2.72	6.19	9.23	15.36	18.37	.0043	.4570	.0957	.0253	.0242	1.2862	.8762	.8717	.8566	.4513	.5110	.8290	.5431
95	2.59	5.93	11.92	11.58	17.52	.0047	.5040	.1780	.0445	.0433	1.2693	.7697	.7621	.7574	.4499	.4743	.8938	.5141

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.0841	1.3035	93.57	93.81	32.72

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	757.6	509.2	450.6	506.3	608.7	64.4	53.49	6.14	-17.95	41.33	473.9	674.3	145.5	-446.3	463.2	499.8
10	18.665	19.908	765.6	578.3	464.9	578.1	608.2	4.7	52.61	.54	-15.24	41.36	481.9	770.2	126.6	-509.0	481.6	513.7
15	19.362	20.485	759.7	583.1	508.2	582.9	564.0	16.4	47.97	1.62	-7.32	41.30	513.1	775.9	64.4	-512.1	499.6	528.6
30	21.439	22.268	741.8	586.4	569.0	581.6	475.8	66.1	39.90	6.48	7.72	41.16	574.5	772.6	-77.4	-508.5	553.2	574.6
50	24.186	24.672	709.8	588.4	579.2	582.5	410.3	82.6	35.31	8.07	20.25	43.56	617.5	803.9	-213.8	-554.0	624.1	636.6
70	26.928	27.186	682.4	582.1	589.1	578.5	352.9	69.9	31.14	6.40	30.34	47.74	676.8	860.2	-341.9	-636.6	694.8	701.5
85	28.974	29.120	672.2	582.4	576.6	578.2	345.5	70.2	30.93	6.92	34.89	49.68	703.0	893.5	-402.1	-681.2	747.6	751.4
90	29.643	29.759	655.3	562.5	555.6	557.5	347.4	74.8	32.03	7.64	36.93	51.20	695.1	889.7	-417.5	-693.1	764.9	767.9
95	30.316	30.402	621.6	497.1	509.9	493.2	355.9	62.0	34.88	7.16	39.93	55.68	665.0	874.8	-426.8	-722.5	782.3	784.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-12.05	-9.54	12.56	47.36	69.42	.0000	.4837	.2869	.0637	.0637	.9238	.0000	.0000	.5409	.6797	.4453	.4270	.5896
10	-9.52	-6.84	6.80	52.07	65.90	.0000	.4206	.1865	.0431	.0431	.9497	.0000	.0000	.6232	.6859	.5078	.4317	.6762
15	-12.11	-9.19	7.33	46.36	62.56	.0000	.3993	.1812	.0432	.0432	.9516	.0000	.0000	.6309	.6803	.5132	.4637	.6829
30	-14.20	-10.55	8.00	33.42	51.93	.0000	.3524	.1591	.0415	.0415	.9591	.0000	.0000	.6416	.6648	.5167	.5173	.6820
50	-15.18	-10.57	6.11	27.24	43.92	.0000	.3054	.0916	.0268	.0268	.9782	.0000	.0000	.7492	.6351	.5200	.5627	.7105
70	-17.46	-11.84	5.44	24.74	42.03	.0000	.2850	.0672	.0220	.0220	.9851	.0000	.0000	.7876	.6100	.5151	.6046	.7611
85	-18.41	-12.03	8.10	24.01	44.14	.0000	.2786	.0654	.0230	.0230	.9859	.0000	.0000	.7738	.5990	.5143	.6263	.7890
90	-18.26	-11.70	9.05	24.39	45.16	.0000	.2926	.0771	.0278	.0278	.9842	.0000	.0000	.7400	.5817	.4953	.6170	.7834
95	-16.49	-9.79	8.77	27.72	46.23	.0000	.3759	.1666	.0616	.0616	.9691	.0000	.0000	.6833	.5489	.4345	.5875	.7647

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5914.	145.10	1.0841	1.2669	83.04	83.59

Table XV(b) Performance with Uniform Inlet Flow, 10° Closed Stator, Solid Casing

80% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	401.3	814.8	401.3	466.1	.0	668.4	.00	55.11	40.42	-28.54	527.1	530.6	-341.8	253.5	341.8	414.9
10	14.306	16.853	409.8	799.2	409.8	469.7	.0	646.6	.00	54.00	42.03	-24.23	551.7	515.1	-369.4	211.4	369.4	435.2
15	15.361	17.635	417.3	772.4	417.3	479.6	.0	605.6	.00	51.62	43.56	-17.38	575.7	502.7	-396.7	150.2	396.7	455.4
30	18.427	19.988	434.8	703.1	434.8	471.9	.0	521.1	.00	47.83	47.58	-.60	644.6	472.2	-475.8	5.0	475.8	516.2
50	22.273	23.137	448.8	636.6	448.8	459.8	.0	440.3	.00	43.75	52.03	18.86	729.5	486.2	-575.2	-157.2	575.2	597.5
70	25.939	26.288	454.9	599.3	454.9	458.6	.0	385.8	.00	40.07	55.82	32.58	809.6	544.3	-669.7	-293.1	669.7	678.8
85	28.573	28.641	454.1	579.8	454.1	458.9	.0	378.7	.00	40.79	58.39	39.43	866.4	568.4	-737.9	-360.9	737.9	739.6
90	29.403	29.417	452.9	561.9	452.9	410.8	.0	383.3	.00	43.04	59.18	42.52	884.1	557.3	-759.3	-376.4	759.3	759.6
95	30.215	30.208	451.6	537.1	451.6	371.8	.0	387.6	.00	46.19	59.94	46.55	901.5	540.6	-780.3	-392.5	780.3	780.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-.69	6.21	7.94	68.96	70.73	.0000	.2855	.2102	.0388	.0388	1.3084	.9005	.8966	.0045	.3645	.7361	.4793	.4793
10	.33	6.93	6.41	66.26	65.80	.0001	.3469	.1267	.0256	.0255	1.3276	.9361	.9335	.6305	.3726	.7200	.5027	.4641
15	1.11	7.32	9.28	60.93	62.93	.0009	.3896	.0707	.0158	.0156	1.3303	.9610	.9594	.8397	.3797	.6943	.5254	.4518
30	2.22	7.85	12.65	48.18	52.99	.0040	.4895	.0314	.0083	.0072	1.3278	.9780	.9771	.9502	.3960	.6274	.5892	.4213
50	3.34	8.32	13.82	33.17	38.69	.0052	.5159	.0191	.0054	.0039	1.3215	.9826	.9819	.9721	.4088	.5647	.6668	.4312
70	4.53	8.71	12.40	23.24	26.94	.0061	.4842	.0100	.0028	.0011	1.3222	.9885	.9880	.9840	.4142	.5297	.7396	.4811
85	4.95	8.60	9.25	18.96	19.60	.0079	.4960	.0653	.0175	.0154	1.3216	.9252	.9221	.9063	.4133	.5101	.7910	.5001
90	4.98	8.46	10.20	16.67	18.37	.0082	.5231	.1166	.0304	.0282	1.3114	.8667	.8614	.8416	.4122	.4928	.8069	.4886
95	4.83	8.17	12.34	13.39	17.52	.0088	.5552	.1736	.0430	.0408	1.2966	.8009	.7934	.7771	.4110	.4692	.8220	.4729

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/A1 LBM/SEC SQFT
1.0876	1.3202	99.30	94.52	30.53

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	731.9	454.4	420.8	453.6	598.1	27.4	54.87	3.46	-17.75	46.18	442.0	655.2	134.5	-472.7	463.6	500.1
10	18.665	19.908	736.8	497.9	450.2	497.5	583.3	20.7	52.34	2.39	-12.70	44.77	461.5	700.7	101.3	-493.4	482.0	519.1
15	19.362	20.485	729.6	515.7	476.2	513.6	552.6	45.9	49.24	5.10	-6.32	43.25	479.3	705.1	52.6	-483.1	500.0	529.0
30	21.439	22.268	702.8	528.7	507.4	525.1	486.2	61.8	43.77	6.72	7.57	44.34	512.0	734.2	-67.5	-513.2	553.6	575.0
50	24.186	24.672	670.8	515.4	522.1	511.2	421.2	65.3	38.90	7.28	21.28	48.20	560.3	767.0	-203.4	-571.8	624.6	637.1
70	26.928	27.186	651.1	514.8	531.5	510.8	376.0	64.0	35.28	7.14	31.00	51.32	620.1	817.3	-319.4	-638.0	695.4	702.0
85	28.974	29.120	639.6	514.9	519.1	510.6	373.6	65.9	35.74	7.36	35.82	53.34	640.2	855.3	-374.7	-686.1	748.2	752.0
90	29.643	29.759	625.2	491.5	496.7	486.0	379.6	73.0	37.39	8.55	37.85	55.06	629.1	848.6	-385.9	-695.5	765.5	768.5
95	30.316	30.402	603.8	439.8	469.3	434.5	385.9	67.9	39.73	8.88	40.52	58.79	610.9	838.6	-396.9	-717.2	782.9	785.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-10.63	-8.12	9.88	51.41	69.42	.0000	.5455	.2173	.0484	.0484	.9467	.0000	.0000	.6894	.6538	.3961	.3959	.5710
10	-9.98	-7.32	8.64	49.95	65.89	.0000	.4943	.1722	.0397	.0397	.9565	.0000	.0000	.7254	.6586	.3951	.4121	.6123
15	-10.48	-7.60	10.81	44.14	62.56	.0000	.4533	.1337	.0318	.0318	.9668	.0000	.0000	.7687	.6524	.4516	.4281	.6174
30	-10.21	-6.59	8.24	37.06	51.89	.0000	.4029	.0578	.0151	.0151	.9865	.0000	.0000	.8866	.6268	.4640	.4571	.6443
50	-11.68	-6.97	5.31	31.62	43.90	.0000	.3863	.0368	.0108	.0108	.9921	.0000	.0000	.9226	.5971	.4522	.4986	.6730
70	-13.34	-7.73	6.19	28.13	42.04	.0000	.3660	.0257	.0084	.0084	.9948	.0000	.0000	.9441	.5786	.4518	.5505	.7173
85	-13.61	-7.24	8.54	28.38	44.14	.0000	.3652	.0223	.0078	.0078	.9956	.0000	.0000	.9480	.5663	.4506	.5668	.7485
90	-12.91	-6.34	9.95	28.85	45.16	.0000	.3918	.0490	.0177	.0177	.9908	.0000	.0000	.8844	.5513	.4287	.6548	.7401
95	-11.69	-9.89	10.49	30.86	46.23	.0000	.4676	.1291	.0475	.0475	.9775	.0000	.0000	.7503	.5304	.3815	.6369	.7275

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5918.	135.39	1.0876	1.3015	89.24	89.65

Table XV(b) Performance with Uniform Inlet Flow, 10° Closed Stator, Solid Casing

Rotor

80% of Design Speed

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VΘ-1 FT/SEC	VΘ-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VΘ'-1 FT/SEC	VΘ'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	366.9	786.8	366.9	423.0	.0	663.4	.00	57.48	43.09	-30.26	502.4	489.7	-343.2	246.8	343.2	416.6
10	14.306	16.853	374.7	770.3	374.7	446.0	.0	628.0	.00	54.61	44.71	-23.17	527.3	485.3	-371.0	190.9	371.0	437.0
15	15.361	17.635	381.6	748.0	381.6	452.7	.0	595.4	.00	52.75	46.22	-16.94	551.7	473.5	-398.3	138.1	398.3	457.3
30	18.427	19.988	397.2	686.8	397.2	493.0	.0	529.8	.00	49.82	50.26	-.82	621.4	443.7	-477.8	6.4	477.8	518.3
50	22.273	23.137	407.8	626.6	407.8	430.6	.0	455.2	.00	46.58	54.77	18.53	707.1	454.9	-577.6	-144.8	577.6	600.0
70	25.934	26.288	409.9	585.4	409.9	416.4	.0	411.3	.00	44.65	58.64	33.00	787.6	496.8	-672.5	-270.4	672.5	681.7
85	28.573	28.691	406.7	554.7	406.7	368.5	.0	414.5	.00	48.37	61.29	41.70	845.2	493.5	-741.0	-328.2	741.0	742.7
90	29.403	29.417	405.2	546.4	405.2	350.5	.0	419.0	.00	50.09	62.01	44.45	863.5	491.1	-762.5	-343.8	762.5	762.8
95	30.215	30.208	403.8	534.8	403.8	331.4	.0	419.7	.00	51.70	62.74	47.65	881.5	492.0	-783.5	-363.6	783.5	783.4

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.98	8.88	6.21	73.35	70.72	.0007	.3293	.2313	.0420	.0418	1.3069	.8995	.8956	.2352	.3325	.7082	.4559	.4409
10	3.01	9.60	7.48	67.88	65.82	.0017	.3648	.1060	.0216	.0212	1.3241	.9499	.9479	.7263	.3401	.6922	.4800	.4361
15	3.79	9.99	9.71	63.17	62.94	.0091	.4115	.0544	.0122	.0112	1.3299	.9721	.9709	.8868	.3468	.6705	.5036	.4245
30	4.91	10.52	12.44	51.09	53.03	.0104	.5182	.0262	.0069	.0042	1.3336	.9829	.9822	.9603	.3611	.6115	.5692	.3950
50	6.12	11.05	13.57	36.24	38.78	.0119	.5512	.0297	.0084	.0050	1.3322	.9755	.9745	.9593	.3705	.5544	.6480	.4025
70	7.38	11.53	12.81	25.64	26.93	.0132	.5408	.0572	.0157	.0120	1.3297	.9445	.9422	.9221	.3718	.5153	.7210	.4373
85	7.80	11.43	11.56	19.54	19.66	.0158	.5866	.1531	.0397	.0356	1.3218	.8457	.8394	.8063	.3687	.4849	.7708	.4316
90	7.80	11.27	12.15	17.57	18.39	.0162	.6029	.1845	.0466	.0425	1.3206	.8133	.8058	.7717	.3675	.4766	.7862	.4283
95	7.61	10.95	13.44	15.09	17.52	.0168	.6134	.2105	.0511	.0470	1.3174	.7848	.7762	.7441	.3663	.4653	.8013	.4281

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/AI LBM/SEC SQFT
1.0916	1.3273	92.03	92.34	28.07

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VΘ-1 FT/SEC	VΘ-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VΘ'-1 FT/SEC	VΘ'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	704.8	396.8	379.5	396.4	593.8	18.4	57.41	2.66	-18.70	50.67	401.0	625.5	128.3	-483.8	465.6	502.3
10	18.665	19.908	706.8	419.5	421.0	418.8	567.6	23.3	53.44	3.18	-11.27	49.66	429.5	646.9	83.6	-493.0	484.0	516.3
15	19.362	20.485	702.1	450.9	445.6	448.0	542.5	49.4	50.60	6.25	-5.20	47.09	447.6	658.1	40.4	-481.8	502.1	531.2
30	21.439	22.268	680.2	479.8	472.8	476.2	489.0	58.6	45.96	7.01	8.06	47.46	477.6	704.3	-67.0	-518.9	556.0	577.5
50	24.186	24.672	650.4	474.0	483.5	469.2	435.0	67.5	41.98	8.18	21.66	50.66	520.9	740.1	-192.2	-572.3	627.2	639.8
70	26.928	27.186	625.2	470.8	480.7	467.6	399.8	65.5	39.75	6.77	31.84	54.25	566.0	800.3	-298.5	-649.5	698.3	705.0
85	28.974	29.120	602.0	451.3	442.4	447.0	408.2	62.1	42.70	7.91	37.80	57.18	559.9	824.7	-343.1	-693.0	751.4	755.1
90	29.693	29.759	596.1	443.9	428.0	437.7	414.8	73.6	44.11	9.64	39.59	57.91	555.4	824.0	-353.9	-698.1	768.7	771.7
95	30.316	30.402	586.8	408.1	411.8	404.1	418.0	56.9	45.43	8.01	41.79	61.08	552.4	835.7	-368.2	-731.6	786.2	788.4

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-8.08	-5.57	9.08	54.76	69.42	.0000	.6118	.1874	.0418	.0418	.9562	.0000	.0000	.7575	.6280	.3496	.3578	.5432
10	-8.80	-6.14	9.41	50.26	65.86	.0000	.5780	.1860	.0428	.0428	.9563	.0000	.0000	.7460	.6302	.3649	.3810	.5628
15	-9.11	-6.25	11.96	44.35	62.56	.0000	.5197	.1361	.0323	.0323	.9684	.0000	.0000	.7956	.6267	.3932	.3973	.5738
30	-8.03	-9.49	8.53	38.95	51.87	.0000	.4569	.0530	.0138	.0138	.9884	.0000	.0000	.9088	.6060	.4193	.4239	.6159
50	-8.48	-3.91	6.22	33.79	43.90	.0000	.4367	.0307	.0090	.0090	.9938	.0000	.0000	.9444	.5778	.4140	.4599	.6464
70	-9.09	-3.52	5.82	32.98	42.10	.0000	.4270	.0159	.0052	.0052	.9970	.0000	.0000	.9872	.5540	.4108	.5007	.6983
85	-6.68	-.33	9.09	34.79	44.19	.0000	.4539	.0329	.0116	.0116	.9943	.0000	.0000	.9479	.5292	.3916	.4922	.7156
90	-6.22	.33	10.95	34.57	45.16	.0000	.4631	.0489	.0176	.0176	.9917	.0000	.0000	.9065	.5226	.3842	.4867	.7133
95	-5.91	.83	9.63	37.41	46.23	.0000	.5336	.1289	.0476	.0476	.9788	.0000	.0000	.7724	.5129	.3519	.4826	.7207

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5943.	124.52	1.0916	1.3108	87.81	88.27

Table XV(c) Performance with Uniform Inlet Flow, 10° Closed Stator, Solid Casing

Rotor

90% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	480.8	936.0	480.8	550.1	.0	757.3	.00	54.01	38.62	-27.88	615.4	622.4	-384.1	291.1	384.1	466.2
10	14.306	16.853	490.9	910.7	490.9	520.2	.0	747.4	.00	55.16	40.22	-26.40	643.0	580.8	-415.2	258.3	415.2	489.1
15	15.361	17.635	500.0	877.4	500.0	527.1	.0	701.3	.00	53.06	41.71	-19.75	669.9	560.7	-445.8	189.5	445.8	511.8
30	18.427	19.988	523.6	796.5	523.6	559.5	.0	566.7	.00	45.35	45.60	1.36	748.4	560.5	-534.8	-13.4	534.8	580.1
50	22.273	23.137	549.0	731.7	549.0	542.6	.0	490.8	.00	42.13	49.91	18.41	844.9	572.2	-646.4	-180.7	646.4	671.5
70	25.934	26.288	563.6	684.9	563.6	538.9	.0	422.6	.00	38.10	53.66	32.27	934.4	637.4	-752.7	-340.3	752.7	762.9
85	28.573	28.641	553.9	670.6	553.9	528.1	.0	413.3	.00	38.05	56.26	38.36	997.2	673.6	-829.3	-418.0	829.3	831.2
90	29.403	29.417	552.6	651.1	552.6	500.6	.0	415.9	.00	39.76	57.07	41.21	1016.6	665.3	-853.4	-437.9	853.4	853.8
95	30.215	30.208	551.0	609.9	551.0	437.0	.0	425.5	.00	44.24	57.86	45.92	1035.6	628.2	-876.9	-451.3	876.9	876.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-2.51	4.40	8.73	66.49	70.84	.0001	.2719	.2588	.0480	.0480	1.3871	.8706	.8644	.3546	.9390	.8497	.5621	.5650
10	-1.53	5.09	4.35	66.62	65.88	.0004	.3748	.2486	.0493	.0492	1.4017	.8693	.8629	.3838	.9484	.8219	.5873	.5242
15	-.78	5.47	6.91	61.46	62.88	.0014	.4242	.1972	.0433	.0430	1.4027	.8867	.8811	.6183	.9567	.7890	.6113	.5041
30	.22	5.90	14.60	44.25	52.94	.0049	.4587	.0989	.0127	.0114	1.4025	.9637	.9619	.9234	.9790	.7119	.6838	.5010
50	1.21	6.21	13.41	31.51	38.71	.0066	.4982	.0351	.0099	.0080	1.4056	.9672	.9656	.9508	.4990	.6488	.7749	.6073
70	2.36	6.56	12.09	21.39	26.92	.0080	.4663	.0171	.0047	.0025	1.4020	.9800	.9790	.9742	.5084	.6048	.8585	.5629
85	2.82	6.47	8.18	17.90	19.60	.0103	.4687	.0563	.0153	.0125	1.4075	.9335	.9302	.9203	.5085	.5894	.9171	.5920
90	2.88	6.36	8.88	15.87	18.36	.0108	.4903	.1037	.0276	.0247	1.3933	.8778	.8719	.8608	.5072	.5701	.9352	.5827
95	2.75	6.09	11.71	11.94	17.52	.0116	.5415	.1907	.0478	.0449	1.3697	.7760	.7661	.7657	.5057	.5305	.9522	.5464

TO/TO INLET	PO/PO INLET	EFF-AD INLET $	EFF-P INLET $	WC1/A1 LBM/SEC SQFT
1.1088	1.3987	92.48	92.83	35.56

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	840.9	572.7	497.9	567.6	677.5	76.6	53.69	7.69	-17.47	40.54	522.2	746.9	156.5	-485.5	521.0	562.1
10	18.665	19.908	839.4	611.0	501.7	605.3	672.9	-72.7	53.29	-6.77	-14.66	46.98	618.6	888.9	131.2	-650.5	641.7	577.8
15	19.362	20.485	826.9	599.2	524.0	598.3	639.5	-27.2	50.66	-2.59	-8.45	46.09	630.3	862.9	77.5	-621.7	561.9	594.5
30	21.439	22.268	794.9	585.9	593.6	583.7	528.4	48.2	41.67	4.73	8.92	45.69	601.5	835.7	-93.8	-598.0	622.2	648.3
50	24.186	24.472	776.6	631.9	618.5	627.4	469.6	73.7	37.20	6.69	20.57	45.67	661.0	898.1	-232.4	-642.4	701.9	716.0
70	26.928	27.186	754.7	638.5	631.9	633.6	412.7	79.0	33.15	7.11	30.26	48.25	731.7	951.6	-368.8	-710.0	761.6	789.0
85	28.974	29.120	749.5	649.6	629.1	644.5	407.5	81.8	32.93	7.24	34.56	49.83	763.9	999.0	-433.4	-763.3	840.9	845.1
90	29.643	29.759	735.4	637.3	609.7	631.5	411.0	86.1	33.99	7.76	36.39	50.92	757.4	1001.8	-449.3	-777.6	860.3	863.7
95	30.316	30.902	699.5	560.1	556.7	555.8	423.5	69.6	37.27	7.19	39.34	55.63	719.8	984.6	-456.3	-812.7	879.9	882.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-11.75	-9.23	14.11	46.00	69.42	.0000	.4708	.2954	.0653	.0653	.9074	.0000	.0000	.5302	.7627	.4980	.4689	.6495
10	-8.78	-6.10	-.50	60.07	46.90	.0000	.4719	.2474	.0567	.0567	.9229	.0000	.0000	.5534	.7499	.5322	.4630	.7742
15	-9.19	-6.23	3.12	53.25	62.56	.0000	.4628	.2672	.0637	.0637	.9188	.0000	.0000	.5238	.7372	.5218	.4746	.7515
30	-12.32	-8.72	6.25	36.94	51.96	.0000	.4179	.2655	.0695	.0695	.9241	.0000	.0000	.4995	.7107	.5119	.5364	.7302
50	-13.26	-8.70	4.90	30.51	44.11	.0000	.3347	.1348	.0395	.0395	.9630	.0000	.0000	.6635	.6931	.5545	.5870	.7880
70	-15.38	-9.79	6.16	26.04	42.03	.0000	.2985	.0901	.0294	.0294	.9765	.0000	.0000	.7323	.6724	.5612	.6492	.8364
85	-16.38	-10.02	8.39	25.70	44.12	.0000	.2871	.0762	.0269	.0269	.9805	.0000	.0000	.7466	.6648	.5699	.6769	.8764
90	-16.37	-9.82	9.17	26.23	46.16	.0000	.2937	.0775	.0279	.0279	.9808	.0000	.0000	.7402	.6508	.5575	.6703	.8763
95	-14.10	-7.35	8.76	30.13	46.23	.0000	.3874	.1854	.0686	.0686	.9583	.0000	.0000	.5460	.6140	.4852	.6318	.8528

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET $	EFF-P INLET $
6652.	157.71	1.1088	1.3373	79.67	80.40

Table XV(c) Performance with Uniform Inlet Flow, 10° Closed Stator, Solid Casing

90% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	447.6	902.3	447.6	504.0	.0	748.4	.00	56.04	40.58	-29.32	589.3	678.1	-383.3	283.1	383.3	465.3
10	14.306	16.853	457.2	884.5	457.2	520.2	.0	715.4	.00	53.98	42.18	-23.60	617.0	667.7	-414.4	227.3	414.4	488.1
15	15.361	17.635	465.7	856.2	465.7	525.9	.0	675.6	.00	52.10	43.69	-17.40	644.1	651.1	-444.9	164.8	444.9	510.8
30	18.427	19.988	485.7	780.5	485.7	510.5	.0	590.4	.00	49.15	47.69	-1.29	721.7	510.8	-533.7	11.5	533.7	578.9
50	22.273	23.137	501.9	708.9	501.9	496.6	.0	505.9	.00	45.53	52.11	18.29	817.4	523.2	-645.1	-164.2	645.1	670.1
70	25.934	26.288	508.9	664.0	508.9	492.0	.0	445.8	.00	42.18	55.88	32.67	907.3	584.6	-751.2	-315.6	751.2	761.4
85	28.573	28.641	508.2	643.4	508.2	467.9	.0	442.1	.00	43.41	68.45	39.66	971.1	607.2	-827.6	-387.5	827.6	829.6
90	29.403	29.417	507.0	630.2	507.0	441.5	.0	449.7	.00	45.54	59.24	42.36	991.1	597.4	-851.6	-402.9	851.6	852.0
95	30.215	30.208	505.6	610.1	505.6	406.6	.0	454.9	.00	48.21	59.98	45.93	1010.7	584.6	-875.1	-420.1	875.1	874.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-.55	6.36	7.28	69.89	70.83	.0005	.3113	.2181	.0399	.0398	1.3956	.8987	.8938	.2125	.9075	.8156	.5369	.5226
10	.46	7.07	7.06	65.79	65.81	.0013	.3579	.1107	.0224	.0222	1.4212	.9451	.9423	.7121	.9169	.7974	.5633	.5117
15	1.25	7.46	9.27	61.09	62.93	.0032	.4069	.0644	.0144	.0136	1.4262	.9654	.9636	.8688	.9252	.7692	.5892	.4952
30	2.33	7.97	11.96	48.98	52.98	.0088	.5170	.0397	.0105	.0082	1.4257	.9733	.9719	.9432	.9440	.6948	.6616	.4547
50	3.42	8.40	13.25	33.83	38.69	.0109	.5469	.0293	.0082	.0052	1.4226	.9749	.9736	.9616	.9591	.6261	.7496	.4621
70	4.59	8.77	12.49	23.21	26.93	.0127	.5171	.0255	.0070	.0035	1.4226	.9735	.9722	.9652	.9655	.5836	.8322	.5138
85	5.00	8.66	9.48	18.79	19.60	.0155	.5331	.0868	.0232	.0191	1.4243	.9078	.9031	.8865	.9646	.5620	.8901	.5304
90	5.04	8.52	10.03	14.88	18.37	.0160	.5578	.1331	.0348	.0306	1.4176	.8695	.8624	.8360	.9635	.5984	.9079	.5199
95	4.87	8.22	11.72	14.06	17.62	.0168	.5837	.1810	.0454	.0411	1.4054	.8085	.7991	.7858	.9622	.6288	.9252	.5067

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/AI LBM/SEC SQFT
1.1129	1.4269	93.48	93.79	33.44

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	807.7	450.8	451.2	450.4	669.8	20.4	56.03	2.59	-18.40	50.20	475.9	703.6	149.9	-540.6	519.9	561.0
10	18.665	19.908	812.5	491.9	492.7	491.4	645.8	22.5	52.67	2.62	-12.10	48.46	504.1	740.7	105.2	-554.2	540.6	576.6
15	19.362	20.485	805.5	524.9	518.6	521.9	616.3	53.6	49.92	5.83	-6.12	45.96	521.8	750.9	55.5	-539.7	560.8	593.3
30	21.439	22.268	776.8	544.6	547.8	540.6	550.7	65.6	45.15	6.92	7.30	46.98	552.5	792.4	-70.3	-579.4	621.0	645.0
50	24.186	24.672	743.2	547.3	563.9	541.9	484.1	76.4	40.66	8.02	20.98	49.66	604.1	837.3	-216.4	-638.2	700.5	719.6
70	26.928	27.186	716.8	551.8	570.9	547.9	434.1	65.5	37.27	6.82	31.23	52.80	667.1	906.3	-345.8	-721.9	779.9	787.4
85	28.974	29.120	704.4	554.9	553.5	550.0	435.6	73.8	38.20	7.64	36.10	54.45	685.0	948.9	-403.6	-769.6	839.2	843.4
90	29.643	29.759	694.3	542.4	532.8	535.8	445.2	84.1	39.88	8.92	37.81	55.44	674.4	944.6	-413.4	-777.8	858.6	861.9
95	30.316	30.402	677.4	492.5	503.6	487.2	453.0	72.0	41.97	8.40	40.17	58.93	659.0	944.0	-425.1	-808.6	878.1	880.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN GREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-9.47	-6.96	9.01	53.44	69.42	.0000	.6140	.2146	.0478	.0478	.9372	.0000	.0000	.7328	.7206	.3887	.4252	.6067
10	-9.62	-6.97	8.84	50.05	65.86	.0000	.5655	.1922	.0443	.0443	.9432	.0000	.0000	.7419	.7250	.4253	.4485	.6404
15	-9.81	-6.94	11.54	44.09	62.56	.0000	.5094	.1413	.0335	.0335	.9588	.0000	.0000	.7917	.7195	.4551	.4645	.6511
30	-8.87	-5.26	8.44	38.23	51.91	.0000	.4591	.0721	.0188	.0188	.9803	.0000	.0000	.8811	.6916	.4732	.4910	.6886
50	-9.83	-5.29	6.12	32.62	43.98	.0000	.4234	.0351	.0103	.0103	.9911	.0000	.0000	.9355	.6594	.4759	.5348	.7281
70	-11.30	-5.70	5.86	30.45	42.03	.0000	.3984	.0193	.0063	.0063	.9954	.0000	.0000	.9608	.6342	.4800	.5885	.7884
85	-11.16	-4.79	8.82	30.56	44.14	.0000	.3941	.0239	.0084	.0084	.9946	.0000	.0000	.9532	.6197	.4810	.6027	.8199
90	-10.43	-3.87	10.33	30.96	45.16	.0000	.4076	.0388	.0139	.0139	.9914	.0000	.0000	.9145	.6083	.4685	.5908	.8158
95	-9.90	-2.65	10.02	33.67	46.23	.0000	.4822	.1235	.0455	.0455	.9740	.0000	.0000	.7679	.5908	.4228	.5749	.8104

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
6638.	148.31	1.1129	1.3967	88.77	89.28

Table XV(c) Performance with Uniform Inlet Flow, 10° Closed Stator, Solid Casing

Rotor

90% of Design Speed

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	415.6	875.7	415.5	461.3	.0	744.3	.00	58.21	42.69	-31.15	565.3	539.3	-383.4	279.0	383.4	465.3
10	14.306	16.853	429.4	860.8	429.4	496.6	.0	703.1	.00	54.76	44.31	-23.40	593.2	541.2	-414.4	214.9	414.4	488.2
15	15.361	17.635	432.5	835.9	432.5	501.8	.0	668.5	.00	53.10	45.81	-17.43	620.5	526.1	-444.9	157.6	444.9	510.8
30	18.427	19.988	450.7	766.3	450.7	486.9	.0	592.2	.00	50.60	49.82	-1.54	698.6	487.0	-533.8	13.2	533.8	579.0
50	22.273	23.137	463.9	700.9	463.9	470.1	.0	519.9	.00	47.88	54.28	17.69	794.7	494.0	-645.2	-150.3	645.2	670.2
70	25.934	26.288	467.5	657.5	467.5	457.7	.0	472.0	.00	45.89	58.10	32.32	884.8	541.8	-751.2	-289.5	751.2	761.5
85	28.573	28.641	469.5	627.3	469.5	409.4	.0	475.2	.00	49.26	60.70	40.89	949.1	541.6	-827.6	-354.4	827.6	829.6
90	29.403	29.417	463.0	619.2	463.0	389.1	.0	481.7	.00	51.08	61.47	43.60	969.4	537.4	-851.7	-370.4	851.7	852.1
95	30.215	30.208	461.5	605.2	461.5	366.6	.0	481.5	.00	52.72	62.20	47.03	989.4	537.8	-875.2	-393.5	875.2	875.0

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.56	8.47	5.51	73.84	70.90	.0020	.3491	.2611	.0469	.0466	1.3870	.8866	.8812	.2584	.3773	.7888	.8136	.4857
10	2.58	9.19	7.27	67.71	65.82	.0037	.3719	.1075	.0218	.0211	1.4156	.9497	.9471	.7397	.3861	.7742	.5403	.4967
15	3.37	9.58	9.24	63.24	62.94	.0070	.4219	.0595	.0133	.0117	1.4235	.9699	.9684	.8842	.3940	.7494	.5669	.4717
30	4.46	10.08	11.71	51.36	53.01	.0149	.5359	.0386	.0102	.0063	1.4282	.9754	.9742	.9460	.4112	.6809	.6408	.4327
50	5.61	10.55	12.68	36.59	38.73	.0173	.5761	.0934	.0123	.0074	1.4308	.9656	.9638	.9452	.4232	.6176	.7296	.4353
70	6.84	10.99	12.13	25.79	26.93	.0193	.5629	.0635	.0175	.0122	1.4329	.9411	.9381	.9198	.4260	.5757	.8121	.4745
85	7.26	10.89	10.73	19.81	19.62	.0228	.6035	.1532	.0402	.0342	1.4274	.8529	.8454	.8183	.4230	.5448	.8685	.4704
90	7.26	10.74	11.29	17.87	18.38	.0233	.6215	.1866	.0478	.0418	1.4270	.8206	.8115	.7837	.4217	.5301	.8858	.4652
95	7.08	10.42	12.82	15.17	17.52	.0292	.6317	.2132	.0524	.0464	1.4219	.7926	.7822	.7571	.4204	.5224	.9029	.4643

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/AI LBM/SEC SQFT
1.1166	1.4263	91.68	91.99	31.30

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	779.3	419.5	403.8	418.7	666.3	25.9	58.78	3.55	-19.96	51.96	430.1	679.4	146.4	-535.1	520.0	561.0
10	18.665	19.908	784.3	443.5	458.6	442.5	635.8	29.1	54.20	3.76	-11.82	51.07	468.9	704.0	95.1	-547.5	540.7	576.7
15	19.362	20.485	780.0	478.1	486.9	475.1	609.3	51.8	51.37	6.16	-5.70	48.75	489.5	720.6	48.4	-541.6	560.8	593.4
30	21.439	22.268	755.1	513.9	515.6	510.0	551.6	63.2	46.93	7.07	7.46	48.76	520.3	773.7	-69.4	-581.8	621.0	645.0
50	24.186	24.672	726.2	512.1	529.7	506.5	496.7	75.6	43.16	8.48	21.05	51.60	567.6	815.5	-203.9	-639.1	700.6	714.7
70	26.928	27.186	703.0	510.8	532.9	506.8	458.5	63.7	40.71	7.16	31.10	55.00	622.5	883.6	-321.5	-723.8	780.0	787.5
85	28.974	29.120	682.0	490.4	496.4	485.0	467.7	72.4	43.29	8.49	36.82	57.83	620.1	910.9	-371.6	-771.1	839.3	843.5
90	29.643	29.759	677.1	486.1	480.7	478.9	476.9	83.5	44.78	9.88	38.46	58.40	613.9	914.1	-381.8	-778.5	858.6	862.0
95	30.316	30.402	666.0	446.5	462.1	442.7	479.5	57.9	46.06	7.45	40.78	61.71	610.3	934.3	-398.6	-822.7	878.1	880.6

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-6.72	-4.22	9.97	55.23	69.43	.0000	.6376	.1847	.0411	.0411	.9493	.0000	.0000	.7756	.6928	.3611	.3830	.5848
10	-7.95	-5.30	9.97	50.44	65.84	.0000	.6067	.1981	.0456	.0456	.9449	.0000	.0000	.7477	.6976	.3824	.4140	.6071
15	-8.36	-5.51	11.87	45.21	62.55	.0000	.5518	.1555	.0369	.0369	.9572	.0000	.0000	.7853	.6953	.4134	.4334	.6231
30	-7.11	-3.55	8.59	39.87	51.90	.0000	.4852	.0640	.0167	.0167	.9834	.0000	.0000	.8998	.6716	.4455	.4599	.6707
50	-7.29	-2.74	6.62	34.67	43.99	.0000	.4637	.0342	.0100	.0100	.9917	.0000	.0000	.9446	.6432	.4435	.4991	.7063
70	-8.02	-2.46	6.21	33.55	42.06	.0000	.4572	.0212	.0069	.0069	.9952	.0000	.0000	.9759	.6202	.4418	.5472	.7642
85	-6.11	.29	9.67	34.80	44.14	.0000	.4862	.0456	.0160	.0160	.9903	.0000	.0000	.9352	.5964	.4214	.5426	.7827
90	-5.56	.99	11.29	34.89	45.16	.0004	.4930	.0561	.0201	.0200	.9882	.0000	.0000	.9049	.5904	.4164	.5349	.7831
95	-5.26	1.48	9.07	38.61	46.23	.0011	.5651	.1286	.0475	.0471	.9739	.0000	.0000	.7925	.5785	.3808	.5296	.7968

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
6639.	138.89	1.1166	1.4039	87.20	87.80

Table XV(d) Performance with Uniform Inlet Flow, 10° Closed Stator, Solid Casing

Rotor

95% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	V1-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	474.7	939.2	474.7	513.0	.0	786.6	.00	56.89	40.54	-29.78	624.7	591.4	-406.0	293.8	406.0	492.9
10	14.306	16.853	485.0	920.9	485.0	540.3	.0	745.6	.00	54.07	42.14	-22.93	654.1	586.9	-438.9	228.6	438.9	517.0
15	15.361	17.635	494.3	893.5	494.3	546.8	.0	706.7	.00	52.27	43.63	-16.85	683.0	571.4	-471.3	165.7	471.3	541.0
30	18.427	19.988	516.4	818.9	516.4	532.8	.0	621.8	.00	49.41	47.59	-.93	765.7	532.9	-565.3	8.6	565.3	613.2
50	22.273	23.137	534.2	744.4	534.2	514.9	.0	537.6	.00	46.23	51.98	18.49	867.4	543.1	-683.3	-172.2	683.3	709.8
70	25.934	26.288	541.9	696.6	541.9	507.9	.0	476.8	.00	43.19	55.74	32.98	962.7	605.6	-795.7	-329.7	795.7	806.5
85	28.573	28.641	541.2	678.9	541.2	484.2	.0	475.8	.00	44.50	58.31	39.77	1030.2	630.0	-876.6	-402.9	876.6	878.7
90	29.403	29.417	540.0	665.9	540.0	457.3	.0	483.9	.00	46.63	59.10	42.48	1051.3	620.1	-902.1	-418.6	902.1	902.5
95	30.215	30.208	538.6	644.6	538.6	420.5	.0	488.6	.00	49.28	59.84	46.18	1072.1	607.4	-927.0	-438.2	927.0	926.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OME A-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-.61	6.31	6.97	70.32	70.97	.0011	.3430	.2335	.0425	.0423	1.4418	.8911	.8854	.3465	.4328	.8482	.5694	.5341
10	.39	7.01	7.80	65.07	65.87	.0024	.3754	.1075	.0219	.0214	1.4719	.9464	.9434	.7556	.4427	.8297	.5972	.5288
15	1.17	7.40	9.82	60.48	62.91	.0050	.4217	.0577	.0129	.0118	1.4810	.9691	.9674	.8926	.4518	.8022	.6248	.5130
30	2.22	7.87	12.32	48.51	52.97	.0116	.5271	.0265	.0070	.0039	1.4876	.9825	.9815	.9633	.4731	.7279	.7027	.4736
50	3.29	8.27	13.45	33.49	38.68	.0143	.5612	.0251	.0071	.0030	1.4857	.9788	.9776	.9684	.4899	.6557	.7972	.4783
70	4.45	8.64	12.81	22.76	26.93	.0166	.5336	.0273	.0075	.0029	1.4862	.9724	.9708	.9648	.4971	.6101	.8852	.5304
85	4.86	8.52	9.59	18.54	19.60	.0200	.5491	.0885	.0236	.0183	1.4931	.9092	.9040	.8923	.4963	.5905	.9468	.5479
90	4.90	8.38	10.15	16.61	18.36	.0207	.5730	.1339	.0349	.0295	1.4865	.8631	.8554	.8430	.4951	.5768	.9658	.5372
95	4.74	8.08	11.97	13.67	17.52	.0217	.5977	.1808	.0451	.0397	1.4726	.8145	.8043	.7958	.4938	.5559	.9842	.5238

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A2 LBM/S C SQFT
1.1272	1.4831	93.75	94.09	35.09

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	V1-2 FT/ EC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	837.3	454.2	452.7	453.7	704.1	21.2	57.26	2.68	-18.76	51.63	478.6	730.9	153.4	-573.0	550.7	594.2
10	18.665	19.908	842.1	491.0	504.6	490.3	673.7	25.9	53.17	3.02	-11.41	50.05	515.2	763.3	101.1	-584.8	572.6	610.8
15	19.362	20.485	837.1	528.3	534.2	525.0	644.3	56.7	50.33	6.11	-5.40	47.45	536.9	776.4	50.3	-571.8	594.0	628.5
30	21.439	22.268	812.6	558.3	569.2	554.4	579.9	66.3	45.53	6.82	7.77	48.05	574.7	829.4	-77.8	-616.9	657.7	683.2
50	24.186	24.672	780.0	564.8	586.4	558.8	514.4	81.6	41.25	8.30	21.20	50.39	629.3	876.6	-227.7	-675.4	742.0	756.9
70	26.928	27.186	752.8	566.0	592.5	561.6	464.4	70.4	38.09	7.14	31.40	53.67	694.2	948.0	-361.8	-763.7	826.1	834.1
85	28.974	29.120	744.1	573.0	578.0	567.3	468.7	80.8	39.04	8.11	36.02	55.08	714.6	991.0	-420.3	-812.6	888.9	893.4
90	29.643	29.759	734.6	562.2	557.0	555.2	479.0	87.9	40.69	9.00	37.70	56.06	704.0	994.5	-430.5	-825.1	909.4	913.0
95	30.316	30.402	716.9	510.3	526.5	504.8	486.6	74.7	42.74	8.42	40.11	59.53	688.4	995.5	-443.5	-858.0	930.1	932.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OME A-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-8.25	-5.75	9.10	54.58	69.42	.0000	.6323	.2107	.0470	.0470	.9350	.0000	.0000	.7468	.7451	.3894	.4269	.6266
10	-9.06	-6.41	9.23	50.15	65.84	.0000	.5883	.2025	.0467	.0467	.9369	.0000	.0000	.7404	.7499	.4222	.4568	.6563
15	-9.39	-6.53	11.82	44.22	62.56	.0000	.5307	.1554	.0369	.0369	.9520	.0000	.0000	.7826	.7465	.4557	.4764	.6697
30	-8.51	-4.92	8.35	38.71	51.93	.0000	.4749	.0823	.0215	.0215	.9759	.0000	.0000	.8708	.7227	.4829	.5091	.7173
50	-9.21	-4.64	6.45	32.95	44.04	.0000	.4375	.0360	.0105	.0105	.9902	.0000	.0000	.9375	.6909	.4887	.5551	.7586
70	-10.47	-4.88	6.19	30.94	42.03	.0000	.4193	.0234	.0076	.0076	.9940	.0000	.0000	.9565	.6642	.4897	.6102	.8201
85	-10.32	-3.95	9.27	30.93	44.12	.0000	.4145	.0295	.0104	.0104	.9927	.0000	.0000	.9463	.6523	.4937	.6262	.8538
90	-9.64	-3.08	10.41	31.69	45.16	.0000	.4279	.0412	.0148	.0148	.9900	.0000	.0000	.9184	.6415	.4825	.6147	.8536
95	-8.61	-1.87	10.04	34.32	46.23	.0001	.5019	.1219	.0449	.0449	.9720	.0000	.0000	.7844	.6228	.4352	.5980	.8489

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7031.	155.64	1.1272	1.4652	88.99	89.55

Table XV(d) Performance with Uniform Inlet Flow, 10° Closed Stator, Solid Casing

Rotor

95% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	V-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	444.1	918.3	444.1	479.8	.0	783.0	.00	58.50	42.33	-31.28	600.9	561.8	-404.7	291.8	404.7	491.2
10	14.306	16.853	453.8	903.0	453.8	520.1	.0	738.1	.00	54.83	43.94	-23.20	630.3	566.1	-437.4	222.8	437.4	515.3
15	15.361	17.635	462.6	877.9	462.6	527.6	.0	701.7	.00	53.06	45.43	-17.12	659.3	552.1	-469.7	162.5	469.7	539.2
30	18.427	19.988	482.8	807.2	482.8	512.9	.0	623.3	.00	50.55	49.40	-1.35	742.0	513.3	-563.4	12.2	563.4	611.2
50	22.273	23.137	497.7	738.0	497.7	492.8	.0	549.3	.00	48.10	53.84	17.76	843.5	518.0	-681.0	-158.1	681.0	707.5
70	25.934	26.288	502.0	689.7	502.0	478.0	.0	497.1	.00	46.13	57.66	32.68	938.5	568.1	-793.0	-306.7	793.0	803.8
85	28.573	28.641	499.4	667.1	499.4	436.7	.0	504.2	.00	49.11	60.24	40.40	1006.4	573.4	-873.7	-371.5	873.7	875.7
90	29.403	29.417	497.9	660.0	497.9	415.2	.0	513.0	.00	51.02	61.02	42.96	1027.7	567.4	-899.0	-386.5	899.0	899.5
95	30.215	30.208	496.5	646.5	496.5	388.9	.0	516.5	.00	53.02	61.75	46.32	1048.8	563.1	-923.9	-407.2	923.9	923.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.18	8.09	5.47	73.62	70.98	.0027	.3648	.2797	.0502	.0497	1.4296	.8771	.8708	.2914	.4040	.8272	.5463	.5060
10	2.19	8.81	7.52	67.14	65.86	.0047	.3822	.1200	.0244	.0234	1.4628	.9433	.9402	.7321	.4133	.8121	.5743	.5091
15	2.98	9.20	9.56	62.55	62.93	.0085	.4285	.0650	.0145	.0126	1.4741	.9669	.9651	.8801	.4280	.7870	.6023	.4949
30	4.04	9.67	11.90	50.75	53.00	.0169	.5390	.0372	.0098	.0053	1.4834	.9765	.9751	.9495	.4414	.7165	.6811	.4557
50	5.16	10.12	12.73	36.08	38.71	.0198	.5827	.0467	.0132	.0076	1.4863	.9632	.9611	.9431	.4551	.6489	.7756	.4555
70	6.39	10.55	12.50	24.98	26.94	.0223	.5688	.0676	.0186	.0124	1.4862	.9377	.9342	.9177	.4588	.6022	.8627	.4960
85	6.80	10.44	10.21	19.85	19.60	.0263	.6044	.1497	.0396	.0326	1.4895	.8584	.8503	.8271	.4562	.5775	.9228	.4964
90	6.81	10.29	10.64	18.06	18.38	.0269	.6246	.1854	.0480	.0410	1.4903	.8250	.8150	.7912	.4548	.5693	.9413	.4894
95	6.63	9.98	12.10	15.43	17.52	.0280	.6406	.2177	.0542	.0472	1.4864	.7932	.7815	.7602	.4535	.5557	.9596	.4839

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A² LBM/SEC SQFT
1.1302	1.4819	91.38	91.84	33.16

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	V-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	815.6	416.0	416.4	414.9	701.0	29.6	59.29	4.09	-20.12	53.59	444.1	699.0	152.1	-562.6	548.9	592.2
10	18.665	19.908	821.2	442.4	477.4	441.4	667.6	30.5	54.44	3.96	-11.61	52.66	487.9	727.4	96.9	-578.2	570.7	608.7
15	19.362	20.485	818.0	480.6	509.8	477.1	639.7	55.4	51.44	6.54	-5.36	50.13	512.3	744.4	47.6	-571.0	592.0	626.4
30	21.439	22.268	795.5	527.9	543.7	524.2	580.7	62.6	46.88	6.81	7.82	49.70	549.1	810.6	-74.8	-618.3	655.5	680.9
50	24.186	24.672	765.6	533.7	557.3	527.5	524.9	80.8	43.29	8.71	21.05	51.93	597.3	855.6	-214.6	-673.6	739.5	754.4
70	26.928	27.186	737.2	531.0	557.2	526.7	482.6	67.8	40.90	7.34	31.45	55.40	653.2	927.5	-340.7	-763.5	823.4	831.3
85	28.974	29.120	723.9	527.9	527.3	522.1	496.0	78.1	43.25	8.51	36.48	57.27	655.8	965.7	-389.9	-812.3	885.9	890.4
90	29.643	29.759	720.2	526.1	510.9	518.5	507.5	89.4	44.81	9.78	37.98	57.71	648.2	970.6	-398.9	-820.5	906.4	909.9
95	30.316	30.402	709.8	485.2	489.1	480.8	514.4	65.3	46.44	7.74	40.15	60.91	639.9	989.0	-412.6	-864.3	927.0	929.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-6.22	-3.72	10.51	55.20	69.42	.0000	.6661	.1837	.0409	.0409	.9458	.0000	.0000	.7882	.7239	.3560	.3949	.5982
10	-7.68	-5.03	10.16	50.48	65.83	.0000	.6339	.2008	.0462	.0462	.9400	.0000	.0000	.7574	.7294	.3794	.4297	.6238
15	-8.27	-5.43	12.25	44.90	62.55	.0000	.5771	.1626	.0385	.0385	.9517	.0000	.0000	.7884	.7284	.4134	.4525	.6402
30	-7.19	-3.63	8.33	40.07	51.91	.0000	.5034	.0687	.0179	.0179	.9806	.0000	.0000	.8987	.7069	.4556	.4843	.6995
50	-7.18	-2.63	6.87	34.57	44.03	.0000	.4719	.0324	.0095	.0095	.9915	.0000	.0000	.9500	.6770	.4602	.5245	.7378
70	-7.75	-2.18	6.38	33.56	42.05	.0000	.4637	.0234	.0076	.0076	.9943	.0000	.0000	.9688	.6486	.4573	.5718	.7987
85	-6.16	.19	9.66	34.74	44.12	.0002	.4751	.0394	.0138	.0138	.9907	.0000	.0000	.9462	.6314	.4518	.5720	.8264
90	-5.55	.99	11.19	35.03	45.16	.0010	.4801	.0488	.0175	.0171	.9887	.0000	.0000	.9202	.6260	.4488	.5635	.8280
95	-4.87	1.87	9.35	38.71	46.23	.0027	.5518	.1253	.0463	.0453	.9719	.0000	.0000	.7946	.6142	.4116	.5531	.8390

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7008.	147.03	1.1302	1.4564	87.13	87.78

Table XV(e) Performance with Uniform Inlet Flow, 10° Closed Stator, Solid Casing

100% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	531.8	1002.0	531.8	576.8	.0	819.3	.00	54.85	38.84	-27.42	682.8	650.1	-428.2	299.4	428.2	519.8
10	14.306	16.853	543.2	978.6	543.2	552.9	.0	807.4	.00	55.60	40.43	-25.35	713.7	611.9	-462.9	262.1	462.9	545.3
15	15.361	17.635	553.7	945.9	553.7	559.7	.0	762.4	.00	53.70	41.91	-18.88	744.1	592.6	-497.0	191.8	497.0	570.6
30	18.427	19.988	581.4	861.8	581.4	595.3	.0	622.8	.00	46.27	45.71	2.27	832.8	597.0	-596.2	-23.9	596.2	646.7
50	22.273	23.137	605.6	796.0	605.6	572.5	.0	553.0	.00	44.00	49.96	18.86	941.4	605.4	-720.7	-195.6	720.7	746.6
70	25.939	26.288	616.9	744.7	616.9	558.9	.0	492.2	.00	41.37	53.68	32.66	1041.5	664.0	-839.1	-358.4	839.1	850.6
85	28.573	28.641	618.0	728.4	618.0	549.0	.0	478.8	.00	41.09	56.24	39.22	1112.1	708.6	-924.5	-448.0	924.5	926.7
90	29.403	29.417	617.0	716.3	617.0	525.1	.0	487.0	.00	42.85	57.03	41.52	1134.0	701.3	-951.4	-464.8	951.4	951.8
95	30.215	30.208	615.7	688.7	615.7	474.0	.0	499.6	.00	46.51	57.80	45.23	1155.4	673.1	-977.7	-477.8	977.7	977.4

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-2.31	4.61	9.36	66.26	71.00	.0009	.3239	.2646	.0493	.0491	1.4753	.8670	.8596	.2144	.4872	.9082	.6252	.5893
10	-1.35	5.28	5.47	65.78	65.94	.0021	.4132	.2351	.0470	.0466	1.5000	.8760	.8668	.5428	.4977	.8817	.6532	.5513
15	-.61	5.67	7.76	60.79	62.84	.0044	.4591	.1815	.0401	.0391	1.5067	.8962	.8901	.7051	.5074	.8487	.6804	.5316
30	.34	6.03	15.52	43.44	52.92	.0104	.4881	.0323	.0085	.0058	1.5148	.9763	.9749	.9543	.5343	.7679	.7634	.5319
50	1.25	6.25	13.88	31.10	38.73	.0132	.5342	.0332	.0093	.0056	1.5276	.9701	.9683	.9583	.5587	.7019	.8677	.5339
70	2.36	6.57	12.47	21.01	26.91	.0157	.5176	.0404	.0111	.0068	1.5261	.9576	.9551	.9496	.5700	.6523	.9621	.5816
85	2.79	6.46	9.09	17.02	19.60	.0200	.5126	.0724	.0195	.0141	1.5362	.9209	.9161	.9111	.5711	.6344	1.0282	.6171
90	2.85	6.33	9.18	15.51	18.35	.0219	.5335	.1161	.0308	.0249	1.5292	.8744	.8667	.8630	.5701	.6212	1.0487	.6082
95	2.70	6.05	11.02	12.57	17.52	.0244	.5733	.1896	.0469	.0407	1.5053	.8022	.7905	.7946	.5687	.5934	1.0683	.5799

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/AI LBM/SEC SQFT
1.1376	1.5197	92.32	92.75	38.42

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	894.2	616.8	511.9	614.9	733.0	47.1	55.07	4.38	-16.58	43.30	534.5	845.1	152.1	-579.6	580.8	626.7
10	18.665	19.908	895.8	666.4	523.6	656.2	726.9	-110.3	54.24	-9.48	-13.22	48.94	537.9	1000.1	122.9	-754.5	603.9	644.2
15	19.362	20.485	885.3	648.7	547.9	646.8	695.1	-46.1	51.75	-4.06	-7.19	47.62	552.9	959.7	68.6	-708.9	626.5	662.8
30	21.439	22.268	852.5	604.9	623.4	604.5	581.0	17.1	42.98	1.63	10.16	49.33	634.3	927.5	-112.7	-703.4	693.7	720.5
50	24.186	24.672	839.6	671.7	652.3	669.7	528.5	51.2	39.01	4.36	21.24	48.13	700.4	1003.3	-254.0	-747.1	782.6	798.3
70	26.928	27.186	819.3	683.9	663.8	681.6	480.2	56.5	35.88	4.74	30.49	50.37	770.6	1068.7	-391.1	-823.2	871.3	879.7
85	28.974	29.120	819.6	698.5	663.8	694.8	472.2	72.0	35.42	5.92	35.03	51.40	810.7	1113.5	-465.4	-870.2	937.5	942.2
90	29.643	29.759	807.5	700.3	648.3	695.9	481.5	78.2	36.60	6.41	36.38	51.81	805.3	1125.7	-477.7	-884.7	959.2	962.9
95	30.316	30.402	785.5	639.6	607.8	637.0	497.6	67.7	39.30	5.17	38.49	55.48	776.6	1124.0	-483.4	-926.0	980.9	983.7

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-10.34	-7.82	10.81	50.68	69.42	.0000	.4740	.3003	.0668	.0668	.8972	.0000	.0000	.5198	.7966	.5327	.4789	.7298
10	-7.65	-4.95	-3.20	63.71	65.93	.0000	.4668	.2481	.0565	.0565	.9150	.0000	.0000	.5358	.7974	.5769	.4788	.8658
15	-8.11	-5.18	1.65	55.81	62.56	.0000	.4621	.2889	.0688	.0688	.9029	.0000	.0000	.4833	.7849	.5613	.4948	.8303
30	-11.04	-7.44	3.16	41.34	51.99	.0000	.4605	.3620	.0951	.0951	.8851	.0000	.0000	.3742	.7590	.5236	.5631	.8028
50	-11.47	-6.93	2.63	34.66	44.18	.0000	.3657	.2125	.0626	.0626	.9345	.0000	.0000	.5092	.7456	.5843	.6171	.8728
70	-12.63	-7.08	3.78	31.14	42.02	.0000	.3344	.1574	.0516	.0516	.9536	.0000	.0000	.5702	.7252	.5952	.6775	.9301
85	-13.89	-7.55	7.02	29.51	44.11	.0000	.3164	.1364	.0482	.0482	.9605	.0000	.0000	.5795	.7172	.6067	.7122	.9671
90	-13.73	-7.18	7.82	30.19	45.15	.0000	.3141	.1213	.0439	.0439	.9655	.0000	.0000	.6030	.7087	.6066	.7066	.9751
95	-12.09	-5.35	6.78	34.13	46.23	.0000	.3941	.2193	.0814	.0814	.9410	.0000	.0000	.4930	.6847	.5486	.6770	.9640

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7416.	170.36	1.1376	1.4179	76.26	77.39

Table XV(e) Performance with Uniform Inlet Flow, 10° Closed Stator, Solid Casing

Rotor

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VD-1 FT/SEC	VI-2 FT/ EC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VD'-1 FT/SEC	VD'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	512.0	991.6	512.0	538.1	.0	832.8	.00	57.12	39.70	-30.46	665.5	624.7	-425.1	316.8	425.1	516.0
10	14.306	16.853	523.2	971.8	523.2	566.0	.0	789.8	.00	54.37	41.29	-23.70	696.4	618.6	-459.5	248.5	459.5	541.3
15	15.361	17.635	533.6	943.7	533.6	574.5	.0	748.7	.00	52.49	42.75	-17.58	726.8	603.1	-493.4	182.2	493.4	566.4
30	18.427	19.988	558.8	866.1	558.8	564.6	.0	656.8	.00	49.31	46.64	-1.49	814.0	565.2	-591.9	14.8	591.9	642.0
50	22.273	23.137	580.0	785.8	580.0	546.9	.0	564.3	.00	45.89	50.96	18.11	921.0	575.6	-715.4	-178.9	715.4	743.2
70	25.934	26.288	589.7	737.4	589.7	541.7	.0	500.4	.00	42.73	54.70	32.42	1020.6	641.7	-833.0	-344.0	833.0	844.4
85	28.573	28.641	589.2	717.5	589.2	514.3	.0	500.2	.00	44.21	57.30	39.22	1090.6	663.9	-917.8	-419.8	917.8	920.0
90	29.403	29.417	587.8	703.8	587.8	484.7	.0	510.1	.00	46.47	58.10	41.90	1112.4	651.3	-944.4	-434.8	944.4	944.9
95	30.215	30.208	586.2	682.4	586.2	442.4	.0	519.6	.00	49.59	58.87	45.53	1133.8	631.6	-970.5	-450.7	970.5	970.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-1.48	5.45	6.43	70.16	71.10	.0013	.3489	.2606	.0471	.0469	1.4863	.8761	.8691	.3015	.4679	.8967	.6076	.5650
10	-.50	6.14	7.11	64.98	65.92	.0026	.3829	.1359	.0275	.0270	1.5205	.9310	.9268	.7051	.4786	.8764	.6363	.5578
15	.26	6.52	9.07	60.33	62.88	.0053	.4272	.0792	.0176	.0165	1.5333	.9567	.9541	.8580	.4887	.8479	.6650	.5418
30	1.27	6.94	11.76	48.13	52.95	.0121	.5271	.0312	.0082	.0050	1.5451	.9791	.9778	.9581	.5133	.7699	.7476	.5023
50	2.26	7.26	13.09	32.85	38.69	.0150	.5601	.0226	.0064	.0021	1.5426	.9806	.9793	.9719	.5340	.6915	.8484	.5065
70	3.41	7.60	12.24	22.29	26.93	.0176	.5322	.0206	.0057	.0008	1.5462	.9788	.9775	.9736	.5434	.6450	.9421	.5613
85	3.86	7.51	9.04	18.07	19.60	.0214	.5508	.0866	.0233	.0176	1.5520	.9112	.9056	.8981	.5428	.6226	1.0068	.5762
90	3.90	7.39	9.58	16.20	18.36	.0230	.5768	.1353	.0356	.0295	1.5440	.8624	.8538	.8471	.5414	.6079	1.0266	.5626
95	3.76	7.10	11.32	13.33	17.52	.0252	.6081	.1898	.0479	.0415	1.5285	.8080	.7962	.7945	.5399	.5862	1.0457	.5426

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A² LBM/S C SQFT
1.1403	1.5399	93.59	93.96	37.28

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VD-1 FT/SEC	VI-2 FT/ EC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VD'-1 FT/SEC	VD'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	880.7	466.2	468.5	465.6	745.4	23.7	57.85	2.91	-19.88	52.12	498.9	758.2	168.8	-598.4	576.6	622.1
10	18.665	19.908	885.9	510.2	524.4	509.6	713.5	25.6	53.69	2.87	-12.36	50.34	537.4	798.0	114.0	-613.9	599.5	639.5
15	19.362	20.485	881.5	551.0	557.8	548.0	682.3	54.5	50.73	5.62	-6.21	47.77	561.5	815.4	60.4	-603.5	621.9	658.0
30	21.439	22.268	858.6	583.1	601.6	578.9	612.4	69.7	45.51	6.86	7.19	48.11	606.8	867.2	-76.2	-645.6	688.6	715.3
50	24.186	24.672	825.2	592.6	623.9	586.6	540.0	83.8	40.88	8.13	20.76	50.38	667.7	920.0	-236.9	-708.7	776.9	792.5
70	26.928	27.186	799.8	597.8	633.8	593.4	487.7	92.5	37.58	6.97	30.75	53.46	737.7	996.6	-377.2	-800.7	864.9	873.2
85	28.974	29.120	789.4	605.9	617.0	599.9	492.4	85.3	38.59	8.09	35.38	54.79	756.8	1040.4	-438.2	-850.1	930.7	935.4
90	29.643	29.759	779.5	590.6	594.3	582.6	504.4	97.4	40.32	9.49	37.00	55.84	744.1	1037.5	-447.8	-858.5	952.2	955.9
95	30.316	30.402	761.9	538.9	559.3	531.8	517.3	86.8	42.77	9.27	39.22	59.13	721.9	1036.6	-456.4	-889.7	973.8	976.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-7.68	-5.17	9.33	54.93	69.42	.0000	.6461	.2231	.0497	.0497	.9256	.0000	.0000	.7404	.7833	.3976	.4448	.6467
10	-8.55	-5.89	9.07	50.82	65.84	.0000	.5970	.2101	.0484	.0484	.9292	.0000	.0000	.7376	.7883	.4367	.4760	.6829
15	-8.98	-6.12	11.33	45.11	62.55	.0000	.5392	.1647	.0391	.0391	.9450	.0000	.0000	.7760	.7856	.4732	.4978	.7003
30	-8.54	-4.96	8.39	38.65	51.95	.0000	.4829	.0975	.0254	.0254	.9688	.0000	.0000	.8519	.7635	.5024	.5369	.7471
50	-9.59	-5.02	6.31	32.75	44.08	.0000	.4428	.0428	.0125	.0125	.9872	.0000	.0000	.9276	.7307	.5111	.5887	.7935
70	-10.98	-5.39	6.01	30.61	42.03	.0000	.4224	.0279	.0091	.0091	.9921	.0000	.0000	.9497	.7054	.5157	.6483	.8598
85	-10.76	-4.39	9.25	30.50	44.12	.0000	.4150	.0280	.0099	.0099	.9923	.0000	.0000	.9497	.6912	.5203	.6623	.8935
90	-10.01	-3.46	10.90	30.83	45.16	.0000	.4318	.0481	.0173	.0173	.9872	.0000	.0000	.9085	.6795	.5049	.6487	.8869
95	-8.59	-1.85	10.88	33.50	46.23	.0004	.5030	.1240	.0456	.0455	.9686	.0000	.0000	.7871	.6601	.4571	.6255	.8794

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7361.	165.33	1.1403	1.5056	88.41	89.05

Table XV(e) Performance with Uniform Inlet Flow, 10° Closed Stator, Solid Casing

Rotor

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	V1-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	493.0	975.0	493.0	516.8	.0	826.8	.00	57.99	40.74	-31.04	650.7	603.6	-424.7	311.3	424.7	515.5
10	14.306	16.853	503.8	959.3	503.8	555.9	.0	781.6	.00	54.57	42.33	-23.43	681.6	606.3	-459.0	240.8	459.0	540.7
15	15.361	17.635	513.8	933.1	513.8	564.7	.0	742.8	.00	52.75	43.80	-17.39	712.0	592.0	-492.9	176.9	492.9	565.8
30	18.427	19.988	537.5	857.8	537.5	552.0	.0	656.6	.00	49.95	47.72	-1.58	799.1	552.3	-591.2	15.3	591.2	641.3
50	22.273	23.137	556.2	781.7	556.2	530.1	.0	574.6	.00	47.30	52.10	17.56	905.6	556.2	-714.7	-167.8	714.7	742.4
70	25.934	26.288	563.5	731.6	563.5	519.9	.0	514.8	.00	44.72	55.89	32.30	1005.0	615.2	-832.1	-328.7	832.1	843.5
85	28.573	28.641	561.9	713.4	561.9	486.6	.0	521.7	.00	46.99	58.49	39.24	1075.3	628.3	-916.8	-397.3	916.8	919.0
90	29.403	29.417	560.4	703.1	560.4	459.2	.0	532.3	.00	49.23	59.29	41.88	1097.3	616.8	-943.4	-411.6	943.4	943.9
95	30.215	30.208	558.8	684.4	558.8	423.0	.0	558.1	.00	51.83	60.04	45.55	1119.0	604.0	-969.5	-431.1	969.5	969.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-.44	6.49	5.84	71.78	71.10	.0021	.3645	.2771	.0498	.0494	1.4793	.8724	.8653	.3142	.4498	.8800	.5931	.5448
10	.55	7.18	7.36	65.76	65.91	.0038	.3846	.1246	.0253	.0245	1.5189	.9387	.9350	.7314	.4602	.8641	.6219	.5462
15	1.33	7.57	9.28	61.19	62.89	.0071	.4289	.0665	.0148	.0132	1.5334	.9650	.9629	.8808	.4700	.8375	.6511	.5314
30	2.35	8.01	11.66	49.30	52.97	.0149	.5345	.0285	.0075	.0036	1.5461	.9817	.9805	.9618	.4932	.7616	.7342	.4904
50	3.41	8.39	12.52	34.55	38.68	.0181	.5776	.0347	.0098	.0047	1.5473	.9717	.9700	.9583	.5112	.6868	.8343	.4887
70	4.61	8.79	12.12	23.59	26.93	.0209	.5562	.0444	.0122	.0065	1.5488	.9576	.9549	.9464	.5179	.6384	.9267	.5367
85	5.05	8.70	9.06	19.26	19.60	.0250	.5844	.1193	.0321	.0253	1.5578	.8846	.8771	.8640	.5162	.6171	.9906	.5434
90	5.09	8.57	9.56	17.41	18.37	.0261	.6096	.1636	.0431	.0362	1.5545	.8428	.8327	.8197	.5148	.6054	1.0103	.5311
95	4.93	8.27	11.34	14.49	17.52	.0281	.6335	.2070	.0522	.0451	1.5433	.8007	.7881	.7789	.5133	.5866	1.0293	.5177

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/S C. SQFT
1.1428	1.5437	92.49	92.93	36.14

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	V1-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	863.7	442.6	444.6	441.9	740.1	25.1	59.00	3.25	-20.33	53.46	474.9	742.2	164.2	-596.3	576.0	621.9
10	18.665	19.908	871.3	475.2	509.1	474.2	706.4	31.4	54.23	3.77	-12.07	52.04	521.2	770.7	107.5	-607.4	598.9	638.8
15	19.362	20.485	868.9	516.5	544.5	513.1	676.9	56.8	51.18	6.25	-5.86	49.50	547.8	790.1	55.6	-600.5	621.2	657.3
30	21.439	22.268	847.0	563.3	585.2	559.3	612.2	66.5	46.29	6.79	7.35	49.19	590.4	856.0	-75.7	-648.0	687.9	714.5
50	24.186	24.672	815.9	572.0	603.1	566.1	549.5	61.8	42.33	8.22	20.57	51.42	644.5	907.9	-226.6	-709.8	776.0	791.6
70	26.928	27.186	787.6	570.9	608.2	566.4	500.4	71.6	39.45	7.21	30.87	54.72	708.6	980.8	-363.6	-800.7	864.0	872.3
85	28.974	29.120	779.5	578.1	586.8	571.6	513.1	86.6	41.17	8.61	35.37	56.01	719.6	1022.4	-416.6	-847.8	929.7	934.3
90	29.643	29.759	773.0	571.2	565.9	562.9	526.5	97.3	42.93	9.81	36.88	56.72	707.6	1025.8	-424.6	-857.5	951.1	954.8
95	30.316	30.402	757.9	522.7	536.0	516.5	535.9	79.8	44.99	8.78	39.18	60.03	691.5	1034.0	-436.9	-895.7	972.7	975.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-6.52	-4.01	9.68	55.75	69.42	.0000	.6647	.1949	.0434	.0434	.9371	.0000	.0000	.7782	.7666	.3771	.4225	.6324
10	-7.92	-5.27	9.96	50.46	65.83	.0000	.6270	.2086	.0480	.0480	.9316	.0000	.0000	.7502	.7739	.4060	.4594	.6584
15	-8.54	-5.69	11.95	44.93	62.55	.0000	.5700	.1700	.0403	.0403	.9445	.0000	.0000	.7803	.7737	.4427	.4843	.6772
30	-7.78	-4.22	8.31	39.50	51.94	.0000	.5002	.0823	.0215	.0215	.9743	.0000	.0000	.8798	.7526	.4845	.5209	.7363
50	-8.13	-3.58	6.41	34.11	44.08	.0000	.4658	.0344	.0100	.0100	.9900	.0000	.0000	.9462	.7214	.4920	.5663	.7810
70	-9.11	-3.53	6.25	32.24	42.02	.0000	.4652	.0244	.0080	.0080	.9933	.0000	.0000	.9610	.6930	.4906	.6201	.8428
85	-8.22	-1.86	9.76	32.55	44.11	.0001	.4621	.0326	.0115	.0114	.9913	.0000	.0000	.9531	.6801	.4940	.6276	.8737
90	-7.44	-.89	11.22	33.12	45.16	.0006	.4625	.0437	.0157	.0155	.9886	.0000	.0000	.9279	.6717	.4862	.6151	.8730
95	-6.34	.40	10.39	36.21	46.23	.0021	.5343	.1191	.0439	.0431	.9702	.0000	.0000	.8055	.6549	.4418	.5971	.8739

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7354.	160.25	1.1428	1.5133	87.99	88.67

Table XV(f) Performance with Uniform Inlet Flow, 10° Closed Stator, Solid Casing

110% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	578.8	1065.4	578.8	573.4	.0	697.8	.00	57.42	38.98	-29.82	744.7	661.8	-468.5	329.1	468.5	568.7
10	14.306	16.853	591.8	1046.0	591.8	602.1	.0	856.1	.00	54.84	40.55	-23.24	778.9	656.0	-506.4	258.6	506.4	596.6
15	15.361	17.635	604.2	1015.0	604.2	610.8	.0	810.6	.00	52.99	41.98	-16.93	812.8	639.3	-543.8	186.3	543.8	624.3
30	18.427	19.988	636.0	931.6	636.0	606.6	.0	707.0	.00	49.36	45.72	.07	911.1	607.6	-652.3	-.6	652.3	707.6
50	22.273	23.137	664.9	866.9	664.9	599.0	.0	626.6	.00	46.29	49.85	17.79	1031.4	629.6	-788.5	-192.4	788.5	819.0
70	25.934	26.288	677.8	818.2	677.8	586.9	.0	570.2	.00	44.17	53.56	31.55	1141.1	688.7	-918.0	-360.4	918.0	930.6
85	28.573	28.641	676.6	789.9	676.6	544.8	.0	541.9	.00	46.40	56.22	39.06	1216.9	701.6	-1011.5	-441.9	1011.5	1013.9
90	29.403	29.417	674.6	774.4	674.6	509.5	.0	583.0	.00	48.86	57.05	41.99	1240.4	685.5	-1040.8	-458.4	1040.8	1041.3
95	30.215	30.208	672.6	751.3	672.6	463.1	.0	591.6	.00	51.95	57.84	45.89	1263.5	665.4	-1069.6	-477.7	1069.6	1069.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-2.22	4.71	7.27	68.81	71.29	.0029	.3882	.2955	.0537	.0532	1.5736	.8536	.8439	.3939	.5317	.9628	.6826	.5980
10	-1.28	5.38	7.65	63.79	65.97	.0050	.4201	.1737	.0353	.0343	1.6196	.9085	.9020	.6945	.5438	.9422	.7138	.5909
15	-.54	5.75	9.69	58.91	62.81	.0085	.4620	.1167	.0260	.0241	1.6353	.9337	.9289	.8236	.5558	.9102	.7455	.5733
30	.35	6.05	13.30	45.65	52.91	.0168	.5457	.0468	.0123	.0079	1.6554	.9673	.9648	.9436	.5874	.8256	.8390	.5384
50	1.15	6.16	12.82	32.07	38.72	.0206	.5729	.0172	.0049	.0009	1.6914	.9846	.9834	.9795	.6172	.7598	.9562	.5518
70	2.27	6.46	11.37	22.01	26.93	.0272	.5605	.0325	.0090	.0014	1.7042	.9682	.9656	.9632	.6306	.7108	1.0636	.5983
85	2.78	6.43	8.88	17.17	19.60	.0397	.5669	.1121	.0302	.0195	1.7034	.8914	.8827	.8827	.6290	.6789	1.1346	.6030
90	2.85	6.33	9.67	15.06	18.37	.0438	.6137	.1619	.0426	.0310	1.6926	.8445	.8323	.8366	.6271	.6618	1.1559	.5858
95	2.73	6.07	11.68	11.95	17.52	.0485	.6421	.2128	.0534	.0412	1.6737	.7958	.7804	.7922	.6251	.6381	1.1763	.5651

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/A* LBM/SEC SQFT
1.1722	1.6773	92.37	92.92	40.80

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	936.4	469.3	479.8	468.8	803.4	21.7	59.15	2.66	-19.44	54.77	509.8	812.7	168.0	-663.9	635.5	685.6
10	18.665	19.908	943.2	519.0	540.7	518.7	772.2	16.1	55.01	1.81	-11.79	53.06	553.0	862.3	111.4	-688.6	660.7	704.7
15	19.362	20.485	937.6	564.1	576.9	562.9	738.9	33.7	52.01	3.37	-5.34	50.86	580.1	891.8	53.5	-691.5	685.4	725.2
30	21.439	22.268	913.7	579.9	632.6	575.4	659.1	72.5	46.17	7.18	8.90	51.20	641.1	918.4	-99.8	-715.8	758.9	788.3
50	24.186	24.672	909.1	628.1	683.8	620.9	598.9	94.6	41.21	8.66	20.57	51.43	731.0	996.0	-257.3	-778.8	856.2	873.4
70	26.928	27.186	891.3	652.3	697.4	647.3	556.0	81.0	38.51	7.13	29.72	53.70	803.2	1093.5	-398.2	-881.4	953.2	962.4
85	28.974	29.120	874.9	651.9	670.8	644.1	561.8	100.3	39.95	8.85	34.67	55.31	815.5	1131.7	-463.9	-930.5	1025.7	1030.8
90	29.643	29.759	864.0	630.6	644.3	621.7	575.7	105.3	41.78	9.62	36.32	56.75	799.7	1133.8	-473.7	-948.1	1049.3	1053.5
95	30.316	30.402	845.2	579.9	606.1	572.5	589.0	92.2	44.18	9.15	38.62	59.81	775.7	1138.5	-484.1	-984.0	1073.2	1076.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-6.41	-3.90	9.08	56.50	69.43	.0000	.6776	.2114	.0471	.0471	.9232	.0000	.0000	.7685	.8290	.3958	.4534	.6854
10	-7.32	-4.65	8.00	53.20	65.87	.0000	.6285	.2089	.0482	.0482	.9232	.0000	.0000	.7554	.8357	.4393	.4888	.7299
15	-7.71	-4.85	9.08	48.64	62.55	.0000	.5721	.1715	.0408	.0408	.9374	.0000	.0000	.7819	.8319	.4794	.5126	.7578
30	-7.86	-4.29	8.70	39.00	52.00	.0000	.5298	.1462	.0381	.0381	.9489	.0000	.0000	.8021	.8085	.4939	.5632	.7821
50	-9.21	-4.68	6.95	32.55	44.20	.0000	.4705	.0681	.0199	.0199	.9765	.0000	.0000	.9000	.8019	.5363	.6392	.8503
70	-10.06	-4.50	6.18	31.38	42.02	.0000	.4420	.0282	.0092	.0092	.9906	.0000	.0000	.9593	.7830	.5569	.7017	.9335
85	-9.42	-3.06	9.99	31.09	44.10	.0003	.4416	.0349	.0122	.0121	.9889	.0000	.0000	.9470	.7611	.5528	.7087	.9596
90	-8.58	-2.03	11.02	32.16	45.16	.0011	.4678	.0636	.0228	.0224	.9803	.0000	.0000	.8968	.7475	.5315	.6921	.9557
95	-7.15	-.41	10.76	35.09	46.23	.0036	.5326	.1264	.0465	.0452	.9626	.0000	.0000	.8012	.7259	.4847	.6658	.9516

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
8113.	180.93	1.1722	1.6288	86.76	87.66

Table XVI(a) Performance with Uniform Inlet Flow, Nominal Stator, Treated Casing

65% of Design Speed

Rotor

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	379.0	738.4	379.0	503.9	.0	539.7	.00	46.97	36.33	-21.79	470.4	542.7	-278.7	201.5	278.7	338.2
10	14.306	16.853	387.0	721.3	387.0	491.0	.0	528.3	.00	47.09	37.89	-19.44	490.4	521.0	-301.2	173.5	301.2	354.8
15	15.361	17.635	394.0	695.9	394.0	485.2	.0	498.8	.00	45.78	39.38	-14.67	509.8	502.2	-323.4	127.5	323.4	371.3
30	18.427	19.988	409.4	627.2	409.4	469.4	.0	415.9	.00	41.52	43.46	.62	564.0	470.3	-388.0	-5.0	388.0	420.8
50	22.273	23.137	420.4	563.7	420.4	454.9	.0	332.9	.00	36.18	48.12	18.70	629.8	481.0	-468.9	-154.3	468.9	487.1
70	25.934	26.288	424.2	517.1	424.2	436.6	.0	277.1	.00	32.41	52.16	32.32	691.4	516.8	-546.0	-276.3	546.0	553.5
85	28.573	28.641	423.4	499.3	423.4	424.4	.0	263.0	.00	31.79	54.86	38.70	735.6	543.8	-601.6	-340.0	601.6	603.0
90	29.403	29.417	422.5	487.8	422.5	408.3	.0	266.9	.00	33.18	55.69	40.81	749.5	539.5	-619.1	-352.5	619.1	619.4
95	30.215	30.208	421.4	462.9	421.4	377.5	.0	267.9	.00	35.36	56.48	44.28	763.1	527.3	-636.2	-368.1	636.2	636.0

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-4.71	2.16	14.78	55.12	70.84	.0000	.1109	.0675	.0132	.0132	1.2114	.9621	.9611	1.3755	.3445	.6709	.4290	.4931
10	-3.72	2.80	11.22	57.32	65.85	.0000	.1957	.0446	.0093	.0093	1.2203	.9738	.9730	-.9940	.3526	.6535	.4493	.4720
15	-3.02	3.15	11.93	54.05	62.91	.0000	.2593	.0355	.0080	.0080	1.2182	.9772	.9765	.7983	.3591	.6289	.4679	.4539
30	-1.86	3.73	13.87	42.84	53.04	.0000	.3687	.0308	.0081	.0081	1.2046	.9741	.9734	.9280	.3728	.5636	.5180	.4226
50	-.51	4.42	13.76	29.42	38.81	.0000	.3959	.0192	.0054	.0054	1.1897	.9787	.9781	.9618	.3823	.5046	.5772	.4305
70	.89	5.06	12.14	19.84	26.94	.0000	.3842	.0308	.0085	.0085	1.1747	.9569	.9559	.9405	.3854	.4616	.6314	.4613
85	1.43	5.07	8.52	16.16	19.60	.0000	.3850	.0629	.0171	.0170	1.1704	.9051	.9028	.8812	.3845	.4447	.6699	.4844
90	1.49	4.97	8.49	14.88	18.37	.0000	.4061	.1042	.0279	.0279	1.1649	.8435	.8398	.8144	.3837	.4336	.6821	.4796
95	1.37	4.71	10.07	12.20	17.52	.0001	.4355	.1605	.0414	.0414	1.1516	.7571	.7518	.7356	.3828	.4104	.6941	.4675

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.0555	1.1867	93.70	93.86	28.93

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	674.6	531.6	472.1	531.3	481.8	-17.4	45.58	-1.87	-12.41	38.67	483.5	680.5	103.9	-425.2	377.9	407.8
10	18.665	19.908	680.1	555.6	484.4	555.3	477.4	-18.7	44.58	-1.93	-9.89	38.26	491.9	707.2	84.4	-437.9	393.0	419.2
15	19.362	20.485	672.8	561.6	495.5	561.4	455.0	-16.5	42.55	-1.69	-5.46	38.58	498.1	718.2	47.3	-447.8	407.7	431.3
30	21.439	22.268	642.6	548.9	512.0	548.7	388.3	-12.5	37.17	-1.30	7.01	41.25	516.2	730.0	-63.1	-481.3	451.4	468.8
50	24.186	24.672	607.1	523.7	516.7	523.4	318.7	-15.4	31.65	-1.68	20.23	45.61	551.1	748.5	-190.6	-534.8	509.2	519.5
70	26.928	27.186	572.8	500.7	504.9	500.5	270.5	-16.2	28.18	-1.85	30.41	49.62	585.6	772.6	-296.5	-588.6	567.0	572.4
85	28.974	29.120	557.9	492.0	493.7	491.7	259.8	-15.3	27.75	-1.78	35.35	51.96	605.4	798.0	-350.3	-628.4	610.0	613.1
90	29.643	29.759	548.0	489.7	479.9	489.5	264.6	-11.1	28.88	-1.38	36.84	53.64	599.6	792.1	-359.5	-637.6	624.1	626.6
95	30.316	30.402	526.1	427.3	453.4	426.7	266.8	-22.2	30.48	-2.99	39.33	57.21	586.1	787.9	-371.4	-662.3	638.3	640.1

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-9.68	-7.17	14.53	47.46	69.41	.0000	.3714	.1613	.0360	.0360	.9643	.0000	.0000	.6205	.6091	.4729	.4369	.6053
10	-7.73	-5.04	14.29	46.51	65.91	.0000	.3465	.1191	.0275	.0275	.9733	.0000	.0000	.6885	.6128	.4949	.4440	.6299
15	-7.14	-4.22	14.00	44.24	62.55	.0000	.3281	.0829	.0198	.0198	.9818	.0000	.0000	.7666	.6051	.5007	.4495	.6403
30	-6.94	-3.26	10.27	38.48	51.94	.0000	.3068	.0316	.0083	.0083	.9936	.0000	.0000	.9110	.5762	.4896	.4664	.6512
50	-8.89	-4.24	6.43	33.34	43.98	.0000	.2984	.0197	.0058	.0058	.9964	.0000	.0000	.9409	.5439	.4671	.4965	.6676
70	-10.53	-4.68	7.24	37.03	42.14	.0000	.2899	.0180	.0059	.0059	.9970	.0000	.0000	.9288	.5133	.4464	.5260	.6888
85	-11.58	-5.18	9.40	29.54	44.14	.0000	.2930	.0372	.0132	.0132	.9942	.0000	.0000	.8324	.4984	.4379	.5413	.7103
90	-11.36	-4.79	10.03	34.26	45.16	.0000	.3257	.0903	.0329	.0329	.9863	.0000	.0000	.6789	.4873	.4170	.5342	.7031
95	-10.94	-4.18	8.62	35.47	46.23	.0000	.3923	.1663	.0619	.0619	.9768	.0000	.0000	.5457	.4677	.3779	.5220	.6968

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
4825.	128.28	1.0555	1.1755	88.38	88.66

Table XVI(b) Performance with Uniform Inlet Flow, Nominal Stator, Treated Casing

80% of Design Speed

Rotor

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	481.0	919.8	481.0	633.8	.0	666.6	.00	46.45	35.45	-21.59	590.5	681.6	-342.5	250.8	342.5	415.7
10	14.306	16.853	491.6	893.1	491.6	614.8	.0	647.8	.00	46.50	36.98	-18.98	615.4	650.4	-370.2	211.7	370.2	436.1
15	15.361	17.635	500.8	860.0	500.8	602.4	.0	613.6	.00	45.51	38.44	-14.59	639.4	623.2	-397.5	157.3	397.5	456.4
30	18.427	19.988	521.8	771.7	521.8	580.9	.0	507.8	.00	41.14	42.42	.94	706.9	581.8	-476.8	-9.4	476.8	517.2
50	22.273	23.137	537.6	692.5	537.6	560.2	.0	407.1	.00	35.99	46.99	18.86	788.2	592.8	-576.4	-191.6	576.4	598.7
70	25.934	26.208	543.0	630.5	543.0	532.9	.0	336.8	.00	32.29	51.02	32.79	863.3	634.2	-671.1	-343.5	671.1	680.3
85	28.573	28.641	542.0	605.3	542.0	513.0	.0	321.2	.00	32.06	53.76	39.31	916.8	663.1	-739.4	-420.0	739.4	741.2
90	29.403	29.417	540.9	586.2	540.9	487.3	.0	325.8	.00	33.77	54.59	41.79	933.5	653.6	-760.9	-435.5	760.9	761.2
95	30.215	30.208	539.6	569.1	539.6	465.5	.0	327.4	.00	35.12	55.39	44.30	950.0	650.5	-781.9	-454.3	781.9	781.7

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-5.60	1.28	14.92	57.04	70.77	.0000	.1059	.0404	.0079	.0079	1.3388	.9781	.9772	1.2007	.4403	.8434	.5420	.6251
10	-4.65	1.89	11.68	55.96	65.83	.0000	.1951	.0351	.0074	.0074	1.3466	.9796	.9787	-.1485	.4510	.8150	.5672	.5935
15	-3.97	2.21	12.02	53.03	62.89	.0000	.2650	.0393	.0089	.0089	1.3411	.9746	.9735	.8086	.4599	.7814	.5905	.5663
30	-2.92	2.69	14.19	41.48	53.02	.0002	.3742	.0338	.0089	.0089	1.3165	.9711	.9699	.9285	.4794	.6949	.6538	.5240
50	-1.65	3.29	13.90	28.14	38.79	.0005	.4039	.0225	.0063	.0062	1.2929	.9748	.9739	.9597	.4935	.6198	.7284	.5305
70	-.24	3.93	12.62	15.23	26.94	.0010	.3935	.0378	.0104	.0101	1.2653	.9474	.9457	.9350	.4981	.5618	.7957	.5651
85	.32	3.97	9.13	14.45	19.60	.0018	.3986	.0790	.0212	.0207	1.2558	.8835	.8797	.8690	.4970	.5373	.8427	.5886
90	.40	3.88	9.46	12.80	18.37	.0019	.4234	.1290	.0340	.0335	1.2428	.8106	.8047	.7989	.4960	.5186	.8575	.5782
95	.28	3.63	10.09	11.08	17.52	.0022	.4395	.1659	.0428	.0422	1.2323	.7558	.7485	.7513	.4948	.5021	.8720	.5739

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.0804	1.2870	93.05	93.29	35.28

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	840.7	663.4	593.1	662.8	595.8	-28.6	45.13	-2.47	-12.48	38.64	607.5	848.5	131.3	-529.8	464.5	501.2
10	18.665	19.908	842.1	679.8	605.6	679.4	585.0	-22.3	44.01	-1.88	-9.56	38.35	614.3	866.4	102.0	-537.5	483.0	515.2
15	19.362	20.485	831.7	680.9	615.4	680.5	559.4	-24.1	42.27	-2.03	-5.42	39.16	618.5	877.6	58.4	-554.2	501.0	530.1
30	21.439	22.268	793.3	667.2	636.1	666.8	473.9	-23.9	36.68	-2.05	7.23	41.99	641.7	897.2	-80.9	-600.1	554.8	576.2
50	24.186	24.672	751.2	636.1	642.1	635.9	389.7	-17.3	31.24	-1.56	20.18	45.87	684.6	913.6	-236.2	-655.7	625.9	638.5
70	26.928	27.186	705.6	605.0	624.4	604.4	328.7	-27.5	27.76	-2.60	30.52	50.41	724.9	948.5	-368.1	-731.0	696.8	703.5
85	28.974	29.120	684.9	588.3	607.0	588.2	317.2	-11.4	27.60	-1.11	35.48	52.44	745.4	965.0	-432.5	-765.0	749.8	753.6
90	29.643	29.759	668.2	562.3	584.9	562.2	323.1	-8.2	28.92	-.85	37.21	54.16	734.4	960.3	-444.0	-778.3	767.1	770.1
95	30.316	30.402	653.5	525.0	566.3	524.7	326.1	-17.3	29.93	-1.90	38.99	56.87	728.6	960.2	-458.4	-804.1	784.5	786.7

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-10.11	-7.60	13.93	47.60	69.41	.0000	.3709	.1452	.0324	.0324	.9536	.0000	.0000	.6807	.7624	.5887	.5515	.7529
10	-8.25	-5.55	14.33	45.89	65.90	.0000	.3542	.1179	.0272	.0272	.9623	.0000	.0000	.7254	.7618	.6038	.5568	.7695
15	-7.41	-4.49	13.67	44.29	62.56	.0000	.3444	.0924	.0220	.0220	.9711	.0000	.0000	.7778	.7505	.6052	.5604	.7800
30	-7.46	-3.77	9.52	38.73	51.93	.0000	.3209	.0313	.0082	.0082	.9909	.0000	.0000	.9263	.7135	.5938	.5822	.7984
50	-9.31	-4.65	6.57	34.80	44.00	.0000	.3116	.0219	.0065	.0065	.9942	.0000	.0000	.9461	.6742	.5660	.6186	.8128
70	-10.94	-5.28	6.49	35.37	42.14	.0000	.3080	.0179	.0059	.0059	.9957	.0000	.0000	.9394	.6330	.5378	.6522	.8432
85	-11.70	-5.30	10.07	28.70	44.14	.0000	.3111	.0449	.0160	.0160	.9899	.0000	.0000	.8369	.6109	.5214	.6655	.8552
90	-11.39	-4.81	10.56	29.77	45.16	.0000	.3387	.0804	.0292	.0292	.9828	.0000	.0000	.7489	.5943	.4964	.6542	.8478
95	-11.52	-4.76	9.72	31.83	46.23	.0000	.3923	.1514	.0564	.0564	.9690	.0000	.0000	.6190	.5806	.4615	.6484	.8440

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5931.	156.46	1.0804	1.2697	87.89	88.28

Table XVI(b) Performance with Uniform Inlet Flow, Nominal Stator, Treated Casing

Rotor

80% of Design Speed

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	417.1	830.4	417.1	506.8	.0	657.8	.00	52.39	39.26	-25.69	538.7	562.5	-340.9	243.9	340.9	413.8
10	14.306	16.853	426.0	799.0	426.0	501.4	.0	622.1	.00	51.13	40.86	-20.54	563.3	535.7	-368.5	188.0	368.5	434.1
15	15.361	17.635	433.8	773.5	433.8	500.7	.0	589.6	.00	49.66	42.37	-15.10	587.1	519.0	-395.7	135.3	395.7	454.3
30	18.427	19.988	451.6	705.3	451.6	490.0	.0	507.3	.00	45.98	46.42	.90	655.2	490.7	-474.7	-7.6	474.7	514.9
50	22.273	23.137	465.2	637.5	465.2	474.1	.0	426.1	.00	41.94	50.96	19.69	738.7	504.1	-573.8	-169.9	573.8	596.0
70	25.934	26.288	470.6	601.2	470.6	468.0	.0	377.4	.00	38.89	54.84	32.64	817.2	555.8	-668.1	-299.8	668.1	677.2
85	28.573	28.641	469.8	586.2	469.8	444.8	.0	381.8	.00	40.65	57.45	38.68	873.2	569.8	-736.0	-356.0	736.0	737.8
90	29.403	29.417	468.7	568.4	468.7	415.2	.0	388.1	.00	43.07	58.25	41.68	890.7	556.0	-757.4	-369.7	757.4	757.8
95	30.215	30.208	467.6	553.9	467.6	396.8	.0	386.5	.00	44.25	59.00	44.63	908.0	557.5	-778.3	-391.7	778.3	778.2

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-1.80	5.08	10.78	64.95	70.73	.0000	.2372	.0782	.0148	.0148	1.3258	.9617	.9601	.3243	.3797	.7523	.4916	.5097
10	-.80	5.77	10.11	61.40	65.82	.0000	.3134	.0569	.0118	.0118	1.3260	.9695	.9683	.8101	.3884	.7211	.5157	.4835
15	-.05	6.14	11.53	57.47	62.91	.0003	.3670	.0284	.0064	.0064	1.3283	.9836	.9829	.9308	.3957	.6961	.5384	.4671
30	1.07	6.69	14.15	45.52	53.01	.0024	.4638	.0016	.0004	-.0002	1.3249	.9987	.9986	.9957	.4122	.6304	.6014	.4385
50	2.29	7.24	14.67	31.27	38.72	.0035	.4919	.0024	.0007	-.0003	1.3145	.9973	.9972	.9950	.4244	.5663	.6773	.4477
70	3.55	7.73	12.46	22.20	26.94	.0044	.4716	.0086	.0024	.0012	1.3141	.9896	.9891	.9858	.4291	.5320	.7479	.4919
85	4.01	7.66	8.50	18.77	19.60	.0060	.4995	.0801	.0217	.0201	1.3166	.9075	.9038	.8864	.4282	.5160	.7978	.5015
90	4.05	7.53	9.35	16.57	18.36	.0063	.5299	.1338	.0354	.0337	1.3062	.8460	.8400	.8207	.4272	.4985	.8133	.4877
95	3.90	7.25	10.42	14.38	17.52	.0068	.5394	.1611	.0413	.0396	1.2996	.8123	.8052	.7887	.4262	.4847	.8284	.4879

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.0859	1.3168	95.28	95.46	31.46

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	755.7	511.0	473.7	510.8	588.9	-31.1	51.19	-3.49	-14.95	46.11	490.3	735.6	126.4	-530.1	462.4	498.9
10	18.665	19.908	745.4	506.1	489.6	506.0	562.0	-11.4	48.93	-1.30	-9.42	46.02	496.4	728.6	81.2	-524.3	480.8	512.8
15	19.362	20.485	738.5	508.5	506.7	528.5	537.2	-6.3	46.67	-.68	-4.35	45.30	508.3	751.3	38.5	-534.0	498.8	527.7
30	21.439	22.268	712.8	538.0	533.1	537.9	473.1	-9.6	41.58	-1.02	8.44	47.31	539.1	793.4	-79.2	-583.2	552.3	573.6
50	24.186	24.672	675.6	553.3	538.8	523.3	407.5	-3.1	37.10	-.34	21.79	50.66	580.4	825.7	-215.5	-638.7	623.0	635.6
70	26.928	27.186	651.8	524.4	538.1	524.3	367.8	-10.9	34.36	-1.19	31.19	53.60	629.1	883.6	-325.8	-711.2	693.7	700.3
85	28.974	29.120	641.9	506.2	519.7	526.2	376.8	2.8	35.95	.30	35.42	54.85	637.7	914.1	-369.6	-747.3	746.4	750.1
90	29.643	29.759	626.5	494.1	494.4	494.0	384.8	-4.2	37.90	-.50	37.46	57.34	622.9	915.6	-378.8	-770.8	763.6	766.6
95	30.316	30.402	614.4	470.9	478.8	470.1	385.0	-28.3	38.80	-3.45	39.59	59.91	621.3	937.8	-395.9	-811.5	780.9	783.2

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-4.21	-1.69	12.91	54.68	69.41	.0000	.5007	.1420	.0316	.0316	.9623	.0000	.0000	.7772	.6770	.4476	.4405	.6443
10	-3.37	-.69	14.95	50.23	65.90	.0000	.4931	.1438	.0332	.0332	.9628	.0000	.0000	.7712	.6679	.4433	.4456	.6382
15	-3.05	-.14	14.99	47.36	62.53	.0000	.4552	.0932	.0222	.0222	.9763	.0000	.0000	.8381	.6613	.4639	.4561	.6594
30	-2.42	1.23	10.57	41.60	51.94	.0000	.4199	.0333	.0088	.0088	.9920	.0000	.0000	.9371	.6361	.4730	.4833	.6977
50	-3.39	1.24	7.67	37.44	43.88	.0000	.4031	.0256	.0075	.0075	.9944	.0000	.0000	.9458	.6018	.4601	.5186	.7260
70	-4.28	1.35	7.88	35.55	42.09	.0000	.3859	.0338	.0111	.0111	.9931	.0000	.0000	.9150	.5797	.4610	.5596	.7767
85	-3.35	3.03	11.48	35.65	44.14	.0007	.3868	.0549	.0195	.0193	.9892	.0000	.0000	.8468	.5675	.4608	.5637	.8004
90	-2.42	4.15	10.91	35.40	45.16	.0026	.4370	.1118	.0407	.0397	.9791	.0000	.0000	.7326	.5519	.4308	.5491	.7982
95	-2.60	4.15	8.17	42.25	46.23	.0038	.4840	.1520	.0565	.0551	.9726	.0000	.0000	.6667	.5404	.4095	.5469	.8154

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5904.	139.52	1.0859	1.2990	90.39	90.74

Table XVI(b) Performance with Uniform Inlet Flow, Nominal Stator, Treated Casing

80% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	356.8	795.6	356.8	437.9	.0	664.2	.00	56.59	43.81	-29.57	494.5	504.0	-342.3	248.7	342.3	415.5
10	14.306	16.853	364.5	760.9	364.5	452.9	.0	611.4	.00	53.46	45.42	-21.16	519.4	486.0	-370.0	175.5	370.0	435.9
15	15.361	17.635	371.2	739.5	371.2	453.4	.0	584.2	.00	52.18	46.94	-15.73	543.8	471.5	-397.3	128.1	397.3	456.1
30	18.427	19.988	385.4	684.5	385.4	441.3	.0	523.3	.00	49.85	51.04	-.80	612.9	442.2	-476.6	6.3	476.6	517.0
50	22.273	23.137	393.4	630.1	393.4	429.7	.0	460.9	.00	47.01	55.67	17.72	697.6	451.9	-576.1	-137.5	576.1	598.4
70	25.934	26.288	393.0	591.1	393.0	398.9	.0	436.0	.00	47.56	59.63	31.48	777.4	468.0	-670.8	-244.0	670.8	679.9
SS	28.573	28.641	388.5	553.3	388.5	332.8	.0	491.9	.00	53.03	62.27	41.92	834.9	447.6	-739.0	-298.8	739.0	740.8
90	29.403	29.417	386.5	541.1	386.5	314.2	.0	440.5	.00	54.51	63.06	45.54	853.1	448.9	-760.5	-320.3	760.5	760.8
95	30.215	30.208	384.8	531.8	384.8	301.9	.0	437.8	.00	55.41	63.79	48.68	871.1	457.4	-781.5	-343.5	781.5	781.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	H-1	H-2	H'-1	H'-2
5	2.75	9.63	6.91	73.37	70.75	.0012	.2905	.1463	.0268	.0266	1.3217	.9389	.9364	.3110	.3237	.7171	.4501	.4542
10	3.78	10.33	9.51	66.59	65.87	.0025	.3464	.0826	.0171	.0165	1.3180	.9611	.9596	.7708	.3314	.6839	.4752	.4368
15	4.53	10.70	10.90	62.67	62.95	.0055	.4016	.0482	.0109	.0096	1.3233	.9754	.9744	.8966	.3378	.6629	.4992	.4227
30	5.71	11.29	12.48	51.84	53.09	.0128	.5135	.0290	.0077	.0043	1.3309	.9813	.9805	.9555	.3505	.6095	.5646	.3937
50	7.07	11.96	12.84	37.95	38.89	.0148	.5520	.0398	.0113	.0071	1.3330	.9683	.9670	.9452	.3569	.5574	.6425	.3998
70	8.42	12.54	11.25	28.15	26.90	.0164	.5823	.1084	.0302	.0255	1.3326	.9024	.8983	.8597	.3558	.5193	.7134	.4112
85	8.84	12.45	11.87	20.35	19.72	.0194	.6480	.2170	.0561	.0510	1.3212	.7963	.7881	.7420	.3515	.4822	.7625	.3901
90	8.83	12.29	13.25	17.52	18.41	.0197	.6565	.2388	.0592	.0542	1.3180	.7720	.7629	.7194	.3499	.4706	.7773	.3904
95	8.65	11.98	14.47	15.11	17.52	.0204	.6560	.2517	.0599	.0550	1.3173	.7557	.7459	.7054	.3485	.4617	.7917	.3970

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/AI LBM/SEC SQFT
1.0936	1.3277	90.14	90.53	27.19

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	716.1	445.2	397.0	441.2	596.0	-59.1	56.33	-7.63	-18.36	51.77	418.3	713.0	131.7	-560.1	464.3	500.9
10	18.665	19.908	697.4	431.4	426.0	429.4	552.1	-41.3	52.34	-5.49	-9.25	52.33	431.7	702.6	69.3	-556.2	482.8	514.9
15	19.362	20.485	691.9	437.2	443.0	437.0	531.4	-13.3	50.19	-1.74	-3.97	51.18	444.2	697.1	30.7	-543.1	500.8	529.8
30	21.439	22.268	674.0	471.9	465.5	471.9	487.3	5.7	46.31	.69	8.19	50.39	470.6	740.2	-67.2	-570.3	554.5	575.9
50	24.186	24.672	647.7	463.8	475.8	463.8	439.4	2.0	42.72	.25	21.34	53.90	511.2	787.2	-106.1	-636.1	625.5	638.1
70	26.928	27.186	624.8	453.9	458.6	453.9	424.2	-.7	42.78	-.09	30.71	57.18	533.5	837.6	-272.3	-703.9	696.5	703.1
85	28.974	29.120	595.6	419.1	406.0	419.1	435.8	3.8	47.03	.52	37.69	60.78	513.1	858.7	-313.6	-749.4	749.4	753.2
90	29.643	29.759	585.5	401.9	390.8	401.8	436.1	3.4	48.14	.48	40.23	62.33	511.9	865.3	-330.6	-766.3	766.7	769.7
95	30.316	30.402	578.6	400.2	380.4	400.1	436.0	-8.6	48.90	-1.23	42.46	63.28	515.6	889.9	-348.1	-794.9	784.1	786.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	H-1	H-2	H'-1	H'-2
5	.76	3.27	8.78	63.96	69.41	.0006	.5761	.1388	.0307	.0306	.9666	.0000	.0000	.8077	.6374	.3879	.3744	.6212
10	.02	2.69	10.77	57.84	65.92	.0000	.5723	.1451	.0333	.0333	.9667	.0000	.0000	.7936	.6221	.3760	.3851	.6125
15	.38	3.25	13.95	51.93	62.55	.0000	.5509	.1406	.0335	.0335	.9681	.0000	.0000	.7947	.6173	.3813	.3955	.6079
30	2.33	5.93	12.24	45.62	51.91	.0005	.4838	.0601	.0158	.0157	.9870	.0000	.0000	.8980	.6002	.4123	.4176	.6466
50	2.15	6.72	8.26	42.47	43.89	.0030	.4813	.0584	.0173	.0164	.9883	.0000	.0000	.9014	.5751	.4047	.4521	.6869
70	3.76	9.32	8.98	42.87	42.15	.0123	.4963	.0740	.0243	.0203	.9862	.0000	.0000	.8825	.5529	.3946	.4720	.7283
85	7.67	14.02	11.70	46.51	44.19	.0522	.5533	.1215	.0432	.0246	.9795	.0000	.0000	.7903	.5227	.3619	.4494	.7413
90	7.84	14.38	11.88	47.66	45.16	.0650	.5821	.1526	.0555	.0319	.9751	.0000	.0000	.7426	.5120	.3462	.4468	.7454
95	7.65	14.38	10.39	50.12	46.23	.0753	.5944	.1540	.0574	.0293	.9754	.0000	.0000	.7303	.5047	.3443	.4486	.7656

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5928.	120.56	1.0936	1.3029	83.93	84.52

Table XVI(c) Performance with Uniform Inlet Flow, Nominal Stator, Treated Casing

Rotor

90% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	419.5	898.9	419.5	492.5	.0	752.0	.00	56.78	42.51	-30.07	569.2	569.2	-384.6	285.2	384.6	466.8
10	14.306	16.853	428.7	865.2	428.7	520.0	.0	691.5	.00	53.05	44.12	-21.19	597.2	558.0	-415.7	201.7	415.7	489.7
15	15.361	17.635	436.7	836.3	436.7	515.3	.0	658.6	.00	51.96	45.62	-15.80	624.5	536.0	-446.4	146.1	446.4	512.5
30	18.427	19.988	454.3	768.7	454.3	493.9	.0	589.0	.00	50.01	49.68	-.93	702.3	494.7	-535.5	8.2	535.5	580.8
50	22.273	23.137	466.1	706.1	466.1	481.2	.0	516.8	.00	47.04	54.24	17.87	797.6	506.4	-647.2	-155.5	647.2	672.3
70	25.934	26.288	467.5	668.2	467.5	461.7	.0	483.0	.00	46.30	58.19	31.34	886.8	540.7	-753.6	-281.0	753.6	763.9
85	28.573	28.641	462.6	639.8	462.6	402.7	.0	497.0	.00	51.00	60.88	39.79	950.5	524.3	-830.3	-335.3	830.3	832.3
90	29.403	29.417	460.3	621.6	460.3	373.4	.0	496.7	.00	53.09	61.69	43.82	970.5	517.8	-854.4	-358.1	854.4	854.8
95	30.215	30.208	458.2	599.8	458.2	341.7	.0	493.0	.00	55.27	62.44	48.39	990.4	514.8	-878.0	-384.9	878.0	877.8

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.42	8.31	6.40	72.58	70.72	.0018	.3044	.1565	.0285	.0281	1.4174	.9333	.9299	.3786	.3817	.8118	.5188	.5140
10	2.44	9.02	9.48	65.30	65.84	.0034	.3430	.0574	.0118	.0111	1.4211	.9730	.9717	.8435	.3909	.7791	.5468	.5025
15	3.20	9.38	10.84	61.42	62.94	.0066	.4055	.0409	.0092	.0077	1.4225	.9790	.9780	.9168	.3987	.7503	.5737	.4809
30	4.34	9.94	12.33	50.61	53.05	.0145	.5262	.0380	.0101	.0062	1.4270	.9754	.9741	.9460	.4150	.6833	.6471	.4397
50	5.60	10.52	12.94	36.36	38.82	.0173	.5610	.0407	.0115	.0066	1.4304	.9674	.9657	.9474	.4252	.6227	.7353	.4465
70	6.96	11.10	11.13	26.85	26.91	.0198	.5693	.0847	.0236	.0180	1.4359	.9232	.9192	.8939	.4256	.5849	.8166	.4733
85	7.45	11.07	9.72	21.09	19.70	.0238	.6302	.1919	.0512	.0448	1.4319	.8224	.8133	.7779	.4208	.5547	.8719	.4546
90	7.46	10.93	11.53	17.87	18.40	.0245	.6476	.2255	.0576	.0512	1.4228	.7882	.7775	.7449	.4189	.5371	.8886	.4475
95	7.31	10.63	14.18	14.05	17.52	.0254	.6596	.2543	.0608	.0547	1.4113	.7565	.7445	.7177	.4171	.5167	.9048	.4434

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1181	1.4279	90.75	91.20	31.42

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	806.9	480.0	444.0	474.7	673.7	-71.0	56.61	-8.51	-18.90	53.17	469.5	791.9	152.1	-633.9	521.6	562.8
10	18.665	19.908	793.7	485.8	489.4	483.2	624.8	-49.4	51.93	-5.84	-9.57	52.42	496.4	792.3	82.5	-627.9	542.4	578.5
15	19.362	20.485	782.7	487.9	503.4	487.4	599.3	-21.5	49.97	-2.53	-4.17	51.68	504.8	786.1	36.7	-616.8	562.6	595.3
30	21.439	22.268	758.0	521.0	523.0	521.0	548.6	5.3	46.37	.58	8.08	50.93	528.4	826.7	-74.4	-641.8	623.0	647.1
50	24.186	24.672	729.2	516.0	537.1	516.0	493.1	2.9	42.55	.32	21.31	54.15	576.8	881.0	-209.7	-714.0	702.8	717.0
70	26.928	27.186	708.8	514.3	531.7	514.3	468.6	-3.8	41.39	-.42	30.57	57.06	617.6	945.9	-313.9	-793.8	782.5	790.0
85	28.974	29.120	689.7	493.6	485.6	493.5	489.7	11.3	45.24	1.31	35.96	59.41	600.1	969.9	-352.3	-834.9	842.0	846.2
90	29.643	29.759	675.1	466.2	462.5	466.1	491.8	6.2	46.77	.76	38.64	61.50	592.2	977.0	-369.6	-858.5	861.4	864.8
95	30.316	30.402	656.5	450.6	435.9	450.4	490.9	-14.8	48.40	-1.88	41.82	63.37	585.0	1004.9	-390.0	-898.3	881.0	883.5

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.09	3.60	7.89	65.12	69.41	.0032	.6048	.1690	.0373	.0366	.9507	.0000	.0000	.7801	.7183	.4145	.4197	.6839
10	-.34	2.33	10.43	57.77	65.91	.0006	.5787	.1603	.0368	.0367	.9544	.0000	.0000	.7809	.7083	.4204	.4422	.6857
15	.15	3.02	13.17	52.49	62.55	.0007	.5609	.1503	.0358	.0357	.9583	.0000	.0000	.7903	.6984	.4224	.4492	.6806
30	2.38	5.96	12.10	45.79	51.87	.0024	.4972	.0664	.0174	.0168	.9826	.0000	.0000	.8946	.6740	.4520	.4678	.7171
50	2.05	6.62	8.33	42.23	43.88	.0065	.4888	.0578	.0171	.0151	.9859	.0000	.0000	.9060	.6456	.4471	.5083	.7634
70	2.45	8.01	8.64	41.81	42.12	.0128	.4927	.0690	.0227	.0185	.9841	.0000	.0000	.8969	.6246	.4445	.5445	.8174
85	5.84	12.19	12.49	43.93	44.14	.0451	.5300	.1116	.0397	.0236	.9758	.0000	.0000	.8092	.6030	.4230	.5241	.8311
90	6.37	12.91	12.16	46.01	45.16	.0591	.5707	.1501	.0546	.0331	.9688	.0000	.0000	.7510	.5886	.3981	.5156	.8341
95	7.10	13.83	9.73	50.28	46.23	.0770	.6004	.1493	.0556	.0269	.9706	.0000	.0000	.7486	.5697	.3838	.5062	.8558

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
6660.	139.33	1.1181	1.3947	84.47	85.18

Table XVI(d) Performance with Uniform Inlet Flow, Nominal Stator, Treated Casing

95% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	514.4	996.7	514.4	600.4	.0	795.5	.00	52.95	38.26	-26.77	655.2	672.7	-405.7	303.0	405.7	492.4
10	14.306	16.853	525.9	959.7	525.9	603.7	.0	746.0	.00	51.02	39.82	-20.80	684.7	645.9	-438.5	229.4	438.5	516.6
15	15.361	17.635	536.1	929.2	536.1	597.6	.0	711.4	.00	49.96	41.29	-15.94	713.6	621.9	-470.9	170.9	470.9	540.6
30	18.427	19.988	560.7	841.6	560.7	581.6	.0	608.2	.00	46.27	45.21	.46	795.9	582.1	-564.9	-4.5	564.9	612.7
50	22.273	23.137	580.3	753.5	580.3	552.3	.0	512.6	.00	42.86	49.63	19.57	896.1	586.5	-682.7	-196.6	682.7	709.2
70	25.934	26.288	589.0	713.1	589.0	548.4	.0	455.9	.00	39.74	53.47	32.54	989.4	650.6	-795.0	-349.9	795.0	805.8
85	28.573	28.641	588.9	695.0	588.9	518.0	.0	463.3	.00	41.81	56.09	38.68	1055.4	663.5	-875.9	-414.7	875.9	877.9
90	29.403	29.417	587.8	681.4	587.8	490.8	.0	472.7	.00	43.92	56.89	41.16	1076.1	652.0	-901.3	-429.1	901.3	901.7
95	30.215	30.208	586.7	663.7	586.7	469.2	.0	469.4	.00	45.01	57.65	44.22	1096.4	654.7	-926.2	-456.6	926.2	926.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-2.84	4.06	9.69	65.03	70.70	.0002	.2530	.1174	.0220	.0220	1.4782	.9426	.9394	.2555	.4714	.9077	.6012	.6126
10	-1.87	4.72	9.84	60.62	65.78	.0007	.3174	.0701	.0145	.0144	1.4815	.9627	.9606	.7864	.4828	.8698	.6301	.5854
15	-1.14	5.06	10.70	57.22	62.89	.0021	.3775	.0480	.0108	.0103	1.4862	.9726	.9710	.8956	.4927	.8383	.6577	.5611
30	-.15	5.49	13.70	44.76	52.98	.0065	.4784	.0198	.0052	.0035	1.4766	.9856	.9848	.9698	.5161	.7514	.7352	.5197
50	.95	5.92	14.54	30.06	38.69	.0088	.5182	.0305	.0085	.0060	1.4554	.9714	.9699	.9600	.5347	.6663	.8282	.5187
70	2.18	6.36	12.37	20.93	26.94	.0109	.4938	.0259	.0071	.0041	1.4609	.9712	.9697	.9649	.5427	.6273	.9139	.5723
85	2.64	6.30	8.50	17.40	19.60	.0139	.5239	.1016	.0275	.0238	1.4648	.8885	.8824	.8739	.5425	.6065	.9736	.5791
90	2.70	6.18	8.82	15.73	18.35	.0146	.5496	.1485	.0396	.0357	1.4570	.8383	.8296	.8231	.5415	.5921	.9922	.5665
95	2.55	5.90	10.01	13.43	17.52	.0156	.5571	.1746	.0451	.0411	1.4465	.8072	.7971	.7957	.5404	.5750	1.0105	.5672

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/AI LBM/SEC SQFT
1.1234	1.4648	93.37	93.71	37.33

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	900.1	590.5	550.3	588.9	712.2	-42.1	52.31	-4.09	-16.40	47.19	573.7	866.7	162.0	-635.8	550.3	593.7
10	18.665	19.908	888.7	587.4	579.8	587.1	673.6	-16.3	49.28	-1.59	-9.93	46.86	588.6	858.6	101.4	-626.5	572.1	610.2
15	19.362	20.485	880.9	608.7	596.7	608.6	648.1	-12.5	47.36	-1.18	-5.23	46.46	599.4	883.5	54.5	-640.5	593.5	627.9
30	21.439	22.268	846.8	620.1	628.9	620.0	567.1	-10.9	42.04	-1.01	8.15	48.20	635.5	930.3	-90.1	-693.5	657.2	682.6
50	24.186	24.672	800.7	591.6	633.1	591.6	490.3	-9.0	37.75	-.87	21.63	52.29	681.2	967.3	-251.1	-765.3	741.4	756.3
70	26.928	27.186	778.2	596.4	639.0	596.2	444.3	-14.9	34.81	-1.43	30.82	54.90	744.0	1036.8	-381.2	-848.3	825.4	833.3
85	28.974	29.120	767.7	598.1	616.6	598.1	457.3	4.8	36.56	.46	34.95	56.03	752.2	1070.5	-430.9	-887.8	888.2	892.6
90	29.643	29.759	757.1	566.8	594.5	566.7	468.8	-.4	38.26	-.05	36.50	58.15	739.5	1074.4	-439.9	-912.6	908.7	912.2
95	30.316	30.402	742.8	542.0	577.1	541.0	467.6	-31.3	39.02	-3.31	38.66	60.68	739.0	1104.8	-461.7	-963.2	929.3	931.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-3.16	-.65	12.31	56.40	69.41	.0009	.5247	.1481	.0330	.0328	.9483	.0000	.0000	.7920	.8063	.5114	.5161	.7505
10	-3.00	-.32	14.66	50.87	65.90	.0004	.5128	.1510	.0348	.0347	.9483	.0000	.0000	.7822	.7966	.5090	.5283	.7440
15	-2.37	.53	14.49	48.54	62.53	.0006	.4831	.1117	.0266	.0265	.9624	.0000	.0000	.8284	.7887	.5285	.5373	.7672
30	-1.95	1.69	10.57	43.05	51.94	.0005	.4438	.0374	.0098	.0097	.9882	.0000	.0000	.9376	.7551	.5399	.5687	.8101
50	-2.74	1.89	7.14	38.62	43.88	.0012	.4435	.0302	.0089	.0086	.9913	.0000	.0000	.9460	.7115	.5145	.6071	.8412
70	-3.80	1.83	7.63	36.24	42.06	.0011	.4271	.0356	.0117	.0113	.9903	.0000	.0000	.9264	.6897	.5186	.6595	.9016
85	-2.75	3.64	11.64	36.10	44.14	.0058	.4298	.0530	.0188	.0168	.9860	.0000	.0000	.8813	.6750	.5171	.6613	.9255
90	-2.06	4.51	11.35	38.31	45.15	.0100	.4765	.1101	.0401	.0364	.9719	.0000	.0000	.7835	.6627	.4873	.6478	.9237
95	-2.39	4.37	8.30	42.33	46.23	.0119	.5204	.1401	.0521	.0477	.9655	.0000	.0000	.7402	.6486	.4645	.6458	.9468

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7025.	165.53	1.1234	1.4367	88.39	88.97

Table XVI(d) Performance with Uniform Inlet Flow, Nominal Stator, Treated Casing

95% of Design Speed

Rotor

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	464.5	946.0	464.5	521.8	.0	789.1	.00	56.52	41.13	-29.61	616.8	600.2	-405.7	296.6	405.7	492.4
10	14.306	16.853	474.6	907.5	474.6	543.3	.0	726.9	.00	53.22	42.73	-21.15	646.2	582.7	-438.5	210.3	438.5	516.6
15	15.361	17.635	483.6	879.7	483.6	540.6	.0	694.0	.00	52.08	44.23	-15.83	675.0	562.1	-470.9	153.4	470.9	540.6
30	18.427	19.988	504.5	808.8	504.5	523.1	.0	616.8	.00	49.70	48.23	-.44	757.4	523.5	-564.8	4.1	564.8	612.7
50	22.273	23.137	521.1	737.9	521.1	508.1	.0	535.1	.00	46.48	52.65	18.90	858.9	537.4	-682.7	-179.1	682.7	709.2
70	25.934	26.288	527.5	696.8	527.5	497.5	.0	487.8	.00	44.44	56.43	32.58	954.1	590.5	-795.0	-318.0	795.0	805.8
85	28.573	28.641	526.2	688.2	526.2	494.7	.0	507.6	.00	47.53	59.00	38.56	1021.7	594.3	-875.9	-370.3	875.9	877.9
90	29.403	29.417	524.9	674.7	524.9	496.7	.0	514.3	.00	49.67	59.78	41.58	1043.0	583.9	-901.3	-387.4	901.3	901.7
95	30.215	30.208	523.6	656.0	523.6	494.6	.0	508.4	.00	50.80	60.52	45.20	1063.9	588.4	-926.2	-417.6	926.2	926.0

% SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P POI	PO2/ TOTAL	EFF-P TOTAL	EFF-AD STATIC	EFF-P	M-1	M-2	M'-1	M'-2
5	.03	6.93	6.89	70.74	70.69	.0015	.3215	.1800	.0329	.0326	1.4597	.9192	.9148	.4104	.4238	.8551	.5633	.5425
10	1.03	7.63	9.49	63.88	65.79	.0030	.3675	.1004	.0207	.0201	1.4600	.9499	.9472	.7685	.4337	.8173	.5918	.5248
15	1.80	8.01	10.82	60.06	62.92	.0060	.4240	.0709	.0159	.0146	1.4664	.9618	.9597	.8703	.4424	.7892	.6194	.5043
30	2.86	8.50	12.80	48.67	52.99	.0133	.5325	.0447	.0118	.0083	1.4753	.9703	.9686	.9397	.4621	.7184	.6963	.4650
50	3.96	8.93	13.86	33.75	38.70	.0161	.5626	.0372	.0104	.0059	1.4768	.9690	.9673	.9537	.4775	.6497	.7901	.4732
70	5.15	9.33	12.41	23.85	26.94	.0184	.5490	.0533	.0146	.0096	1.4839	.9487	.9458	.9337	.4832	.6095	.8774	.5165
85	5.56	9.21	8.38	20.44	19.60	.0221	.5911	.1374	.0373	.0313	1.5014	.8681	.8604	.8398	.4818	.5767	.9381	.5153
90	5.58	9.07	9.25	18.21	18.36	.0228	.6147	.1786	.0473	.0412	1.4954	.8282	.8183	.7982	.4806	.5826	.9568	.5042
95	5.41	8.76	10.99	15.32	17.52	.0238	.6191	.2004	.0509	.0448	1.4856	.8034	.7922	.7765	.4794	.5649	.9753	.5067

TO/TO INLET	PO/PO INLET	EFF-AD INLET	EFF-P INLET	WCI/AI LBM/SEC SQFT
		%	%	
1.1291	1.4806	91.93	92.36	34.41

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	848.9	511.1	470.7	506.8	706.4	-65.7	56.32	-7.39	-18.34	52.45	996.1	831.7	166.1	-659.4	550.3	593.7
10	18.665	19.908	831.9	523.0	509.3	521.1	657.6	-44.5	52.24	-4.89	-9.55	51.49	916.8	836.8	85.5	-654.8	572.1	610.2
15	19.362	20.485	823.5	514.8	528.0	514.4	632.0	-18.1	50.12	-2.01	-4.17	51.47	529.5	825.8	38.4	-646.0	593.5	627.9
30	21.439	22.268	800.8	551.6	557.5	551.6	574.9	1.1	45.88	.12	8.39	51.01	563.6	876.7	-82.3	-681.5	657.2	682.6
50	24.186	24.672	769.9	546.2	575.5	546.2	511.4	-2.3	41.62	-.24	21.78	54.24	619.8	934.7	-230.0	-758.6	741.4	756.3
70	26.928	27.186	748.1	540.4	579.0	540.3	473.8	-5.4	39.30	-.57	31.27	57.21	677.4	997.7	-351.6	-838.7	825.4	833.3
85	28.974	29.120	749.3	549.4	557.9	549.2	500.2	13.2	41.88	1.37	34.82	58.02	679.6	1036.9	-388.0	-879.5	888.1	892.6
90	29.643	29.759	739.4	521.8	535.5	521.7	509.9	11.8	43.59	1.29	36.67	59.91	667.7	1040.6	-398.8	-900.4	908.7	912.2
95	30.316	30.402	724.4	504.9	517.9	504.4	506.5	-21.9	44.36	-2.48	39.23	62.13	668.5	1079.0	-422.8	-953.8	929.3	931.9

% SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P POI	PO2/ TOTAL	EFF-P TOTAL	EFF-AD STATIC	EFF-P	M-1	M-2	M'-1	M'-2
5	.88	3.40	9.01	63.71	69.41	.0043	.5945	.1527	.0328	.0328	.9518	.0000	.0000	.8024	.7548	.4399	.4423	.7159
10	-.07	2.59	11.38	57.13	65.91	.0015	.5606	.1249	.0287	.0284	.9618	.0000	.0000	.8288	.7412	.4515	.4607	.7223
15	.36	3.23	13.69	52.13	62.55	.0016	.5582	.1414	.0337	.0334	.9575	.0000	.0000	.8054	.7335	.4441	.4710	.7124
30	1.88	5.48	11.64	45.76	51.88	.0031	.4959	.0596	.0156	.0148	.9830	.0000	.0000	.9066	.7112	.4770	.4993	.7582
50	1.16	5.75	7.83	41.86	43.95	.0063	.4857	.0425	.0125	.0107	.9887	.0000	.0000	.9289	.6811	.4721	.5468	.8079
70	.67	6.26	8.47	39.87	42.04	.0080	.4876	.0598	.0197	.0171	.9849	.0000	.0000	.9000	.6587	.4661	.5950	.8605
85	2.48	8.84	12.54	40.51	44.13	.0262	.4972	.0902	.0321	.0228	.9775	.0000	.0000	.8422	.6548	.4705	.5940	.8881
90	3.29	9.84	12.70	42.30	45.16	.0371	.5390	.1380	.0502	.0367	.9665	.0000	.0000	.7643	.6437	.4947	.5808	.8869
95	3.05	9.79	9.13	46.85	46.23	.0419	.5745	.1485	.0553	.0397	.9653	.0000	.0000	.7480	.6286	.4293	.5794	.9173

NCORR INLET	WCORR INLET	TO/TO INLET	PO/PO INLET	EFF-AD INLET	EFF-P INLET
RPM	LBM/SEC			%	%
7025.	152.61	1.1291	1.4472	86.30	86.99

Table XVI(e) Performance with Uniform Inlet Flow, Nominal Stator, Treated Casing

Rotor

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	594.1	1151.6	594.1	755.6	.0	869.1	.00	48.99	35.68	-24.93	741.4	833.3	-426.6	351.3	426.6	517.8
10	14.306	16.853	608.0	1118.6	608.0	750.0	.0	829.9	.00	47.89	37.17	-20.91	763.1	803.1	-461.1	286.7	461.1	549.2
15	15.361	17.635	620.6	1079.8	620.6	736.2	.0	789.9	.00	47.01	38.58	-16.72	793.9	769.2	-495.1	221.5	495.1	580.4
30	18.427	19.988	651.1	969.7	651.1	715.0	.0	654.9	.00	42.48	42.37	-.85	881.3	715.9	-593.9	10.7	593.9	644.2
50	22.273	23.137	673.7	859.9	673.7	681.4	.0	524.4	.00	37.56	46.82	17.97	989.5	717.8	-717.9	-221.3	717.9	745.2
70	25.934	26.288	678.6	758.9	678.6	629.8	.0	423.4	.00	33.92	50.93	33.93	1078.6	759.4	-835.9	-423.8	835.9	847.3
85	28.573	28.691	674.2	716.7	674.2	583.5	.0	415.9	.00	35.50	53.78	41.02	1141.3	771.5	-920.9	-507.3	920.9	921.1
90	29.403	29.417	671.8	682.6	671.8	539.7	.0	417.8	.00	37.75	54.67	44.50	1161.6	756.8	-947.7	-530.3	947.7	948.1
95	30.215	30.208	669.3	665.2	669.3	515.3	.0	420.7	.00	39.23	55.50	47.01	1181.7	755.8	-973.8	-552.9	973.8	973.6

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO1	P02/ TOTAL	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-5.41	1.98	11.53	60.61	70.69	.0001	.1343	.1653	.0315	.0315	1.5396	.9135	.9082	1.9976	.5485	1.0080	.6761	.7729
10	-4.50	2.08	9.73	58.08	65.78	.0004	.2078	.1073	.0222	.0221	1.5604	.9404	.9366	-1.1899	.5629	1.0307	.7082	.7900
15	-3.84	2.35	9.91	55.30	62.88	.0013	.2795	.0962	.0215	.0212	1.5588	.9421	.9384	.6001	.5756	.9882	.7388	.7840
30	-2.98	2.64	12.40	43.22	52.99	.0048	.3916	.0643	.0170	.0157	1.5254	.9501	.9471	.8821	.6058	.8751	.8242	.8461
50	-1.80	3.12	13.03	28.85	38.80	.0070	.4318	.0613	.0173	.0153	1.4739	.9381	.9347	.9099	.6272	.7674	.9238	.8906
70	-.29	3.85	13.74	17.00	26.93	.0097	.4238	.0928	.0251	.0225	1.4000	.8819	.8762	.8696	.6310	.6720	1.0086	.8724
85	.38	4.00	10.89	12.77	19.65	.0159	.4490	.1700	.0445	.0405	1.3712	.7760	.7658	.7743	.6263	.6292	1.0657	.8790
90	.47	3.99	12.20	10.17	18.39	.0174	.4757	.2258	.0570	.0525	1.3406	.6994	.6868	.7146	.6240	.5959	1.0832	.8607
95	.39	3.72	12.80	8.49	17.52	.0199	.4887	.2580	.0634	.0585	1.3283	.6564	.6425	.6814	.6218	.5706	1.1002	.8573

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1283	1.4500	87.33	87.97	41.14

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	1043.6	769.2	695.9	767.9	777.7	-95.5	48.18	-3.39	-15.97	41.10	723.9	1018.9	199.1	-669.2	578.6	625.2
10	18.665	19.908	1045.7	789.4	729.4	788.5	749.3	-37.3	45.77	-2.71	-11.45	40.73	744.3	1040.6	147.7	-679.0	601.6	641.6
15	19.362	20.985	1036.1	801.1	745.5	800.4	719.3	-39.0	43.97	-2.43	-7.29	40.93	752.0	1059.5	95.3	-694.2	624.0	660.2
30	21.439	22.268	990.9	772.9	780.3	772.7	610.6	-15.3	38.04	-1.14	5.86	43.49	785.0	1065.2	-80.4	-733.0	691.0	717.7
50	24.186	24.672	930.4	755.9	783.3	755.8	501.9	-10.2	32.64	-.78	19.49	46.81	831.8	1104.7	-277.6	-805.3	779.5	795.2
70	26.928	27.186	853.1	699.7	746.4	698.9	413.2	-31.9	28.97	-2.61	31.35	52.41	874.1	1146.0	-454.7	-908.1	867.9	876.4
85	28.974	29.120	819.2	662.3	708.8	662.1	410.6	-16.3	30.09	-1.41	36.45	55.27	881.2	1162.1	-523.3	-954.9	933.8	938.5
90	29.643	29.759	789.2	624.9	672.0	624.8	413.8	-19.0	31.63	-1.30	38.87	57.30	863.1	1156.7	-541.6	-973.2	955.4	959.1
95	30.316	30.402	774.4	586.3	651.4	586.0	418.8	-18.8	32.74	-1.04	40.60	59.59	857.9	1150.0	-558.3	-996.7	977.1	979.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO1	P02/ TOTAL	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-7.21	-4.69	13.01	51.57	69.41	.0000	.4330	.1871	.0417	.0417	.9177	.0000	.0000	.6908	.9493	.6725	.6611	.8907
10	-6.45	-3.75	13.51	48.48	65.89	.0000	.4137	.1720	.0397	.0397	.9241	.0000	.0000	.7010	.9496	.6917	.6777	.9118
15	-5.71	-2.78	13.26	46.40	62.55	.0000	.3958	.1407	.0336	.0336	.9388	.0000	.0000	.7443	.9380	.7033	.6843	.9301
30	-6.09	-2.40	10.44	39.17	51.93	.0000	.3830	.1239	.0326	.0326	.9495	.0000	.0000	.7679	.8931	.6791	.7136	.9359
50	-7.93	-3.28	7.37	33.41	44.03	.0002	.3485	.0530	.0156	.0156	.9804	.0000	.0000	.8904	.8350	.6659	.7512	.9732
70	-9.72	-4.07	6.49	31.58	42.17	.0000	.3509	.0275	.0090	.0090	.9912	.0000	.0000	.9301	.7634	.6154	.7839	1.0079
85	-9.17	-2.77	9.77	31.50	44.14	.0001	.3762	.0418	.0219	.0219	.9816	.0000	.0000	.8458	.7242	.5781	.7805	1.0142
90	-8.66	-2.08	10.11	32.93	45.16	.0003	.4051	.0788	.0287	.0286	.9781	.0000	.0000	.8127	.6956	.5425	.7617	1.0040
95	-8.49	-1.93	9.77	34.58	46.23	.0007	.4532	.1406	.0624	.0622	.9624	.0000	.0000	.7159	.6808	.5062	.7553	.9992

NCORR RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7387.	182.46	1.1283	1.4040	79.37	80.33

Table XVI(e) Performance with Uniform Inlet Flow, Nominal Stator, Treated Casing

Rotor

100% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	585.4	1085.8	585.4	687.2	.0	840.6	.00	50.73	36.08	-25.16	724.3	759.3	-426.6	322.8	426.6	517.8
10	14.306	16.853	598.9	1047.8	598.9	685.2	.0	792.7	.00	49.16	37.59	-20.00	755.9	729.4	-461.1	249.5	461.1	543.2
15	15.361	17.635	611.3	1011.4	611.3	678.9	.0	749.6	.00	47.83	39.01	-14.93	786.6	703.0	-495.1	181.2	495.1	568.4
30	18.427	19.988	641.5	917.0	641.5	663.7	.0	632.7	.00	43.63	42.79	1.00	874.2	664.2	-593.9	-11.5	593.9	644.3
50	22.273	23.137	666.1	834.9	666.1	639.5	.0	536.7	.00	40.00	47.14	18.09	979.3	673.4	-717.9	-209.1	717.9	745.8
70	25.934	26.288	674.6	771.8	674.6	613.3	.0	468.6	.00	37.38	51.09	31.70	1074.2	721.0	-835.9	-378.8	835.9	847.3
85	28.573	28.641	672.9	733.9	672.9	562.9	.0	470.8	.00	39.91	53.85	38.79	1140.6	722.2	-921.0	-452.4	921.0	923.2
90	29.403	29.417	671.3	716.2	671.3	534.1	.0	477.1	.00	41.77	54.69	41.41	1161.4	712.3	-947.7	-471.1	947.7	948.2
95	30.215	30.208	669.7	701.3	669.7	515.3	.0	475.8	.00	42.72	55.49	44.02	1181.9	716.5	-973.9	-497.9	973.9	973.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-5.02	1.88	11.30	61.24	70.69	.0001	.2190	.1417	.0269	.0269	1.5272	.9248	.9202	-.6272	.5398	.9969	.6685	.6972
10	-4.11	2.49	10.64	57.59	65.76	.0005	.2859	.0965	.0200	.0199	1.5345	.9447	.9413	.6450	.5534	.9564	.6995	.6657
15	-3.42	2.79	11.71	53.93	62.87	.0016	.3442	.0736	.0166	.0163	1.5346	.9544	.9515	.8230	.5656	.9182	.7293	.6382
30	-2.57	3.07	14.24	41.79	52.96	.0054	.4389	.0311	.0082	.0068	1.5218	.9757	.9742	.9511	.5954	.8228	.8135	.5959
50	-1.52	3.44	13.07	29.06	38.70	.0076	.4780	.0254	.0072	.0050	1.5103	.9748	.9733	.9650	.6194	.7415	.9144	.5980
70	-.17	4.00	11.52	19.40	26.94	.0099	.4721	.0471	.0131	.0103	1.4875	.9457	.9426	.9384	.6273	.6804	1.0029	.6356
85	.41	4.06	8.61	15.05	19.60	.0154	.5104	.1391	.0376	.0334	1.4668	.8377	.8289	.8330	.6254	.6404	1.0627	.6303
90	.50	3.98	9.08	13.28	18.36	.0174	.5321	.1823	.0484	.0437	1.4535	.7877	.7764	.7883	.6239	.6221	1.0812	.6187
95	.38	3.73	9.81	11.47	17.52	.0199	.5388	.2063	.0535	.0483	1.4448	.7580	.7453	.7638	.6223	.6073	1.0994	.6205

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1341	1.4973	91.19	91.67	40.90

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.360	981.3	667.7	629.9	666.4	752.4	-40.5	50.07	-3.48	-15.43	44.93	653.5	941.3	173.8	-664.8	578.6	624.3
10	18.665	19.908	973.8	674.1	660.1	673.5	715.8	-26.7	47.32	-2.27	-9.82	44.78	670.0	948.9	114.2	-668.4	601.6	641.7
15	19.362	20.485	963.4	686.8	679.7	686.3	682.6	-25.8	45.12	-2.15	-4.93	44.99	682.5	970.4	58.5	-686.1	624.1	660.3
30	21.439	22.268	931.3	697.5	720.6	697.2	589.8	-21.1	39.30	-1.73	7.98	46.66	727.9	1015.9	-101.2	-738.8	691.0	717.8
50	24.186	24.672	897.6	694.6	736.2	684.3	513.4	-17.6	34.89	-1.47	19.87	49.90	783.1	1062.6	-266.2	-812.8	779.6	795.2
70	26.928	27.186	855.2	684.9	722.9	664.6	456.9	-18.1	32.29	-1.56	29.63	53.38	831.7	1114.3	-411.1	-894.4	868.0	876.3
85	28.974	29.120	825.9	658.2	682.8	638.1	464.7	-12.3	34.24	-1.10	34.50	56.14	828.5	1145.2	-469.2	-950.9	933.9	938.6
90	29.643	29.759	811.3	649.3	659.2	609.1	473.0	-13.7	35.66	-1.29	36.20	57.95	816.9	1147.9	-482.5	-972.9	955.5	959.2
95	30.316	30.402	799.4	643.9	643.7	583.3	474.0	-26.3	36.36	-2.58	38.01	59.90	817.1	1163.1	-503.2	-1006.2	977.2	979.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-5.38	-2.86	12.93	55.54	69.41	.0006	.4938	.1578	.0352	.0350	.9370	.0000	.0000	.7729	.8843	.5786	.5911	.8157
10	-4.98	-2.30	13.97	49.59	65.90	.0004	.4785	.1491	.0344	.0343	.9412	.0000	.0000	.7781	.8773	.5849	.6048	.8234
15	-4.61	-1.71	13.52	47.27	62.53	.0004	.4580	.1155	.0275	.0274	.9552	.0000	.0000	.8197	.8671	.5972	.6155	.8438
30	-4.71	-1.06	9.85	41.03	51.94	.0002	.4203	.0393	.0103	.0103	.9855	.0000	.0000	.9335	.8362	.6089	.6563	.8868
50	-5.61	-.97	6.54	36.36	43.88	.0008	.4103	.0251	.0074	.0072	.9913	.0000	.0000	.9558	.8025	.5974	.7028	.9273
70	-6.33	-.68	7.52	35.85	42.12	.0007	.4046	.0212	.0070	.0067	.9932	.0000	.0000	.9538	.7612	.5793	.7409	.9709
85	-5.06	1.33	10.08	35.35	44.14	.0037	.4320	.0480	.0170	.0157	.9857	.0000	.0000	.8944	.7275	.5515	.7299	.9896
90	-4.67	1.90	10.11	35.96	45.16	.0059	.4670	.0866	.0315	.0294	.9751	.0000	.0000	.8300	.7116	.5237	.7173	.9867
95	-5.07	1.68	9.03	35.95	46.23	.0070	.5025	.1229	.0458	.0432	.9657	.0000	.0000	.7767	.6995	.5001	.7159	.9961

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7387.	181.38	1.1341	1.4677	86.43	87.14

Table XVI(e) Performance with Uniform Inlet Flow, Nominal Stator, Treated Casing

100% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	523.9	1017.2	523.9	582.0	.0	834.3	.00	55.10	39.22	-28.44	676.3	661.9	-427.6	315.2	427.6	519.0
10	14.306	16.853	535.5	979.0	535.5	598.9	.0	774.5	.00	52.29	40.79	-21.01	707.4	641.5	-462.2	230.0	462.2	544.5
15	15.361	17.635	546.0	948.5	546.0	591.7	.0	741.3	.00	51.40	42.26	-16.17	737.9	616.1	-496.3	171.6	496.3	569.7
30	18.427	19.988	571.4	857.7	571.4	579.6	.0	645.8	.00	48.09	46.17	.00	825.2	579.6	-595.3	-.0	595.3	645.8
50	22.273	23.137	593.0	786.2	593.0	560.2	.0	551.6	.00	44.56	50.51	19.27	932.4	593.5	-719.6	-195.9	719.6	747.5
70	25.934	26.288	602.4	745.7	602.4	553.2	.0	500.0	.00	42.11	54.28	32.27	1032.0	654.3	-837.9	-349.3	837.9	849.3
85	28.573	28.641	601.9	732.1	601.9	519.8	.0	515.4	.00	44.76	56.90	38.26	1102.0	662.0	-923.1	-409.9	923.1	925.3
90	29.403	29.417	600.6	718.9	600.6	488.1	.0	527.8	.00	47.25	57.70	40.89	1123.9	645.6	-949.9	-422.5	949.9	950.4
95	30.215	30.208	599.3	700.3	599.3	463.6	.0	524.9	.00	48.54	58.45	44.21	1145.4	646.9	-976.2	-451.1	976.2	975.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-1.90	5.00	8.08	67.65	70.75	.0011	.3052	.1951	.0360	.0358	1.5115	.9066	.9011	.3090	.4800	.9232	.6200	.6008
10	-.92	5.69	9.62	61.80	65.77	.0023	.3551	.1190	.0246	.0241	1.5169	.9375	.9338	.7169	.4915	.8847	.6499	.5797
15	-.17	6.04	10.49	58.43	62.90	.0047	.4159	.0948	.0213	.0202	1.5239	.9464	.9432	.8267	.5016	.8530	.6789	.5541
30	.80	6.46	13.24	46.17	52.96	.0113	.5124	.0478	.0126	.0096	1.5298	.9667	.9647	.9354	.5261	.7719	.7609	.5156
50	1.81	6.80	14.23	31.24	38.68	.0142	.5422	.0358	.0100	.0060	1.5241	.9684	.9664	.9557	.5469	.6926	.8615	.5229
70	2.99	7.18	12.09	22.01	26.93	.0169	.5251	.0416	.0115	.0068	1.5349	.9576	.9550	.9483	.5559	.6526	.9544	.5726
85	3.45	7.11	8.08	15.63	19.60	.0213	.5619	.1235	.0337	.0279	1.5473	.8751	.8673	.8573	.5552	.6347	1.0184	.5740
90	3.50	6.99	8.55	16.81	18.36	.0230	.5917	.1736	.0464	.0403	1.5400	.8261	.8152	.8072	.5540	.6202	1.0380	.5569
95	3.35	6.70	10.00	14.24	17.52	.0254	.6004	.2004	.0518	.0452	1.5290	.7967	.7842	.7813	.5527	.6020	1.0572	.5561

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1409	1.5306	91.75	92.23	37.89

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	912.1	551.3	523.6	548.0	746.8	-59.4	54.96	-6.18	-17.67	51.34	549.8	877.3	166.8	-685.1	580.0	625.7
10	18.665	19.908	898.8	548.5	563.1	546.8	700.3	-42.8	51.20	-4.47	-9.82	51.44	571.7	877.2	97.3	-685.9	603.0	643.2
15	19.362	20.485	890.2	561.3	580.2	560.8	675.2	-22.8	49.33	-2.33	-4.89	50.68	582.4	885.0	49.7	-684.6	625.5	661.8
30	21.439	22.268	864.3	636.5	620.1	606.3	602.1	-13.7	44.16	-1.29	8.31	50.41	626.7	951.4	-90.5	-733.1	692.6	719.4
50	24.186	24.672	829.3	593.0	639.7	592.8	527.7	-15.1	39.52	-1.46	21.62	53.87	688.3	1005.5	-253.7	-812.2	781.4	797.1
70	26.928	27.186	809.2	691.7	646.7	601.5	486.4	-15.0	36.95	-1.43	30.67	56.05	751.9	1077.0	-383.6	-893.3	870.0	878.3
85	28.974	29.120	804.1	698.0	623.5	608.0	507.8	.0	39.16	.00	34.49	57.12	756.4	1120.2	-428.3	-940.8	936.1	940.8
90	29.643	29.759	794.4	573.8	597.8	573.8	523.2	-1.5	41.20	-.15	36.01	59.21	739.0	1120.9	-434.5	-962.9	957.7	961.4
95	30.316	30.402	779.5	555.5	578.1	554.9	522.9	-25.2	42.13	-2.61	38.30	61.15	736.7	1150.2	-456.6	-1007.5	979.4	982.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-.49	2.03	10.22	61.14	69.40	.0045	.5865	.1616	.0359	.0349	.9429	.0000	.0000	.7951	.8127	.4729	.4915	.7527
10	-1.11	1.55	11.80	55.67	65.90	.0020	.5751	.1673	.0385	.0380	.9422	.0000	.0000	.7828	.8022	.4712	.5107	.7536
15	-.44	2.43	13.37	51.66	62.55	.0025	.5516	.1497	.0357	.0351	.9491	.0000	.0000	.7974	.7942	.4827	.5189	.7610
30	.19	3.79	10.23	45.45	51.87	.0027	.4821	.0467	.0123	.0116	.9849	.0000	.0000	.9264	.7690	.5239	.5566	.8219
50	-.97	3.64	6.60	43.97	43.93	.0044	.4764	.0361	.0107	.0093	.9891	.0000	.0000	.9404	.7346	.5120	.6096	.8682
70	-1.65	3.96	7.61	38.38	42.03	.0052	.4595	.0405	.0133	.0116	.9883	.0000	.0000	.9266	.7139	.5191	.6627	.9292
85	-.19	6.18	11.18	39.16	44.14	.0168	.4676	.0680	.0242	.0182	.9809	.0000	.0000	.8695	.7033	.5209	.6617	.9597
90	.89	7.45	11.26	41.34	45.16	.0266	.5176	.1306	.0475	.0379	.9643	.0000	.0000	.7685	.6912	.4883	.6430	.9539
95	.77	7.52	9.01	44.73	46.23	.0310	.5492	.1449	.0540	.0424	.9618	.0000	.0000	.7482	.6760	.4713	.6387	.9758

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7404.	168.01	1.1419	1.4951	86.42	87.16

Table XVI(e) Performance with Uniform Inlet Flow, Nominal Stator, Treated Casing

100% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	509.0	907.1	509.0	531.5	.0	831.8	.00	57.42	39.96	-30.57	664.1	617.4	-426.6	314.0	426.6	517.8
10	14.306	16.853	519.7	948.4	519.7	555.7	.0	768.5	.00	54.13	41.58	-22.07	694.8	599.6	-461.1	225.3	461.1	543.2
15	15.361	17.635	529.8	988.2	529.8	553.1	.0	732.9	.00	52.96	43.06	-16.56	725.2	577.2	-495.1	164.5	495.1	568.4
30	18.427	19.988	553.7	849.4	553.7	545.5	.0	651.1	.00	50.04	47.00	-.71	812.1	545.8	-594.0	6.8	594.0	644.3
50	22.273	23.137	572.6	768.3	572.6	523.6	.0	562.3	.00	47.04	51.42	19.29	918.4	555.2	-717.9	-183.5	717.9	745.8
70	25.934	26.288	579.8	733.0	579.8	509.7	.0	512.7	.00	45.16	55.25	33.29	1017.4	609.9	-835.9	-334.7	835.9	847.4
85	28.573	28.641	578.8	713.3	578.8	472.6	.0	534.2	.00	48.51	57.85	39.47	1087.8	612.2	-921.0	-389.0	921.0	923.2
90	29.403	29.417	577.7	699.8	577.7	442.2	.0	542.4	.00	50.82	58.64	42.54	1109.9	600.3	-947.8	-405.8	947.8	948.2
95	30.215	30.208	576.6	681.0	576.6	418.6	.0	537.2	.00	52.07	59.37	46.20	1131.8	604.9	-973.9	-436.5	973.9	973.7

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-1.06	5.84	5.93	71.53	70.68	.0016	.3585	.1916	.0346	.0343	1.5112	.9107	.9054	.5186	.4661	.8919	.6090	.5578
10	-.08	6.52	8.56	63.65	65.75	.0031	.4016	.1113	.0228	.0222	1.5146	.9429	.9395	.7840	.4766	.8535	.6384	.5396
15	.65	6.86	10.10	59.62	62.89	.0059	.4564	.0829	.0186	.0172	1.5208	.9540	.9513	.8670	.4864	.8228	.6673	.5172
30	1.65	7.29	12.54	47.71	52.97	.0131	.5481	.0337	.0089	.0054	1.5406	.9773	.9759	.9569	.5093	.7535	.7493	.4842
50	2.74	7.71	14.26	36.13	38.69	.0164	.5805	.0376	.0105	.0059	1.5341	.9681	.9661	.9559	.5272	.6747	.8487	.4875
70	3.97	8.14	13.11	21.97	26.94	.0193	.5661	.0576	.0157	.0104	1.5396	.9441	.9406	.9329	.5338	.6302	.9400	.5316
85	4.41	8.06	9.29	10.38	19.60	.0234	.6080	.1430	.0383	.0320	1.5584	.8622	.8534	.8430	.5326	.6157	1.0031	.5285
90	4.44	7.93	10.22	15.09	18.37	.0249	.6321	.1847	.0481	.0416	1.5526	.8224	.8110	.8032	.5316	.6014	1.0226	.5158
95	4.28	7.64	11.99	13.18	17.52	.0271	.6366	.2065	.0515	.0447	1.5428	.7981	.7853	.7825	.5306	.5834	1.0417	.5181

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1429	1.5382	91.59	92.08	36.81

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	884.1	544.4	476.1	519.0	744.8	-75.2	57.41	-8.25	-19.25	53.43	504.7	871.0	166.2	-699.5	578.6	624.3
10	18.665	19.908	867.9	534.9	517.7	532.4	696.3	-50.8	53.37	-5.46	-10.41	52.45	526.8	873.5	94.7	-692.5	601.6	641.7
15	19.362	20.485	857.4	535.6	537.8	534.9	667.7	-25.9	51.15	-2.77	-4.64	52.06	539.8	870.1	43.6	-686.2	624.1	660.3
30	21.439	22.268	840.2	559.1	581.0	589.1	606.9	-2.3	46.25	-.22	8.23	50.71	587.1	930.3	-84.1	-720.0	691.1	717.8
50	24.186	24.672	801.7	578.6	594.9	578.6	537.4	-4.7	42.09	-.46	22.15	54.12	642.4	987.3	-242.2	-800.0	779.6	795.3
70	26.928	27.186	776.8	573.3	596.3	573.3	497.9	-7.0	39.86	-.70	31.83	57.01	701.8	1053.0	-370.1	-883.3	868.0	876.3
85	28.974	29.120	777.7	582.0	572.4	581.9	526.4	8.2	42.61	.80	35.45	57.98	702.7	1097.5	-407.5	-930.5	933.9	938.6
90	29.643	29.759	768.2	554.6	548.5	554.6	537.8	6.0	44.44	.62	37.29	59.81	689.5	1102.9	-417.7	-953.2	955.5	959.2
95	30.316	30.402	753.5	537.7	530.4	537.1	535.2	-25.6	45.26	-2.73	39.80	61.89	690.4	1140.0	-442.0	-1005.5	977.2	980.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.99	4.50	8.16	65.66	69.41	.0087	.6074	.1813	.0401	.0381	.9392	.0000	.0000	.7696	.7847	.4491	.4491	.7459
10	1.07	3.73	10.79	56.82	65.88	.0041	.5768	.1649	.0379	.0369	.9463	.0000	.0000	.7799	.7719	.4592	.4685	.7499
15	1.37	4.24	12.93	53.92	62.55	.0041	.5632	.1649	.0393	.0383	.9474	.0000	.0000	.7750	.7625	.4600	.4788	.7472
30	2.25	5.83	11.39	46.48	51.89	.0054	.4857	.0712	.0187	.0173	.9781	.0000	.0000	.8861	.7453	.5080	.5186	.8022
50	1.63	6.21	7.63	42.56	43.97	.0094	.4760	.0452	.0134	.0106	.9872	.0000	.0000	.9222	.7079	.4985	.5650	.8506
70	1.21	6.80	8.34	43.56	42.04	.0115	.4749	.0549	.0181	.0143	.9853	.0000	.0000	.9075	.6821	.4929	.6145	.9053
85	3.18	9.54	11.97	41.80	44.12	.0336	.4878	.0853	.0303	.0184	.9775	.0000	.0000	.8503	.6772	.4964	.6122	.9362
90	4.12	10.66	12.03	43.82	45.16	.0470	.5294	.1337	.0487	.0315	.9657	.0000	.0000	.7656	.6661	.4705	.5973	.9355
95	3.97	10.70	8.89	47.98	46.23	.0530	.5635	.1462	.0544	.0347	.9638	.0000	.0000	.7436	.6510	.4549	.5954	.9644

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7387.	163.22	1.1429	1.4993	85.83	86.60

APPENDIX G

BLADE ELEMENT AND OVERALL PERFORMANCE TIP-RADIAL DISTORTION

(FOR TABLE HEADINGS SEE APPENDIX D)

Table XVII	**Nominal Stator, Solid Casing**
Table XVIII	**Nominal Stator, Treated Casing**

Table XVII(a) Performance with Tip Radial Distortion, Nominal Stator, Solid Casing

80% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	494.1	922.4	494.1	623.9	.0	679.3	.00	47.43	34.72	-22.90	601.1	677.5	-342.4	263.7	342.4	415.6
10	14.306	16.653	518.6	900.7	518.6	627.0	.0	646.6	.00	45.87	35.51	-18.54	637.1	661.7	-370.1	210.5	370.1	436.0
15	15.361	17.635	534.5	872.0	534.5	620.9	.0	612.1	.00	44.57	36.62	-14.04	666.1	640.9	-397.4	155.8	397.4	456.2
30	18.427	19.988	559.0	789.7	559.0	599.8	.0	513.5	.00	40.55	40.44	.39	734.7	600.9	-476.7	-3.6	476.7	517.1
50	22.273	23.137	557.8	696.9	557.8	547.8	.0	430.8	.00	38.18	45.91	17.08	802.4	574.3	-576.2	-167.8	576.2	598.6
70	25.934	26.288	471.1	611.0	471.1	466.1	.0	395.0	.00	40.30	54.92	31.47	820.3	546.9	-671.0	-285.1	671.0	680.1
85	28.573	28.641	403.3	560.9	403.3	396.2	.0	396.8	.00	45.06	61.37	41.00	842.3	525.1	-739.2	-344.2	739.2	741.0
90	29.403	29.417	390.7	548.8	390.7	369.0	.0	405.8	.00	47.74	62.81	43.94	855.2	512.5	-760.7	-355.2	760.7	761.1
95	30.215	30.208	383.8	538.4	383.8	343.9	.0	414.2	.00	50.30	63.85	46.89	870.9	503.2	-781.7	-367.3	781.7	781.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO2/PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-6.43	.46	13.78	57.62	70.93	.0000	.1337	.0433	.0084	.0084	1.3436	.9726	.9715	1.3100	.4536	.8456	.5524	.6211
10	-6.21	.36	12.22	54.05	65.89	.0000	.2043	.0177	.0037	.0037	1.3467	.9867	.9861	.7084	.4775	.8230	.5880	.6047
15	-5.86	.36	12.54	50.66	62.86	.0000	.2672	.0222	.0050	.0050	1.3431	.9823	.9815	.8989	.4920	.7939	.6153	.5835
30	-4.87	.76	13.65	40.05	52.98	.0000	.3739	.0313	.0083	.0083	1.3199	.9702	.9690	.9346	.5144	.7125	.6788	.5422
50	-2.71	2.25	12.30	28.83	38.94	.0003	.4462	.0668	.0189	.0188	1.2938	.9261	.9234	.8949	.5117	.6227	.7377	.5131
70	3.53	7.75	11.22	23.45	26.85	.0051	.4913	.0352	.0098	.0084	1.3207	.9608	.9592	.9484	.4306	.5401	.7479	.4835
85	7.89	11.56	11.01	20.37	19.79	.0163	.5404	.0636	.0167	.0124	1.3427	.9334	.9305	.9136	.3666	.4917	.7639	.4603
90	8.57	12.09	11.67	18.87	18.44	.0190	.5687	.1008	.0257	.0208	1.3458	.8971	.8927	.8693	.3543	.4795	.7751	.4477
95	8.76	12.11	12.68	16.96	17.52	.0207	.5935	.1388	.0342	.0291	1.3467	.8601	.8541	.8267	.3478	.4689	.7892	.4383

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.0884	1.3228	94.09	94.32	33.07

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	821.4	611.2	552.4	610.7	607.8	-22.7	47.74	-2.14	-14.57	40.62	570.8	804.6	143.4	-523.8	464.4	501.1
10	18.665	19.908	827.5	629.3	586.1	629.1	584.0	-15.1	44.89	-1.38	-9.80	40.12	595.0	822.8	101.1	-530.2	482.9	515.1
15	19.362	20.485	821.8	641.0	602.6	640.8	558.5	-16.3	42.82	-1.45	-5.48	40.44	605.8	842.1	57.6	-546.2	500.9	530.0
30	21.439	22.268	789.9	641.5	627.3	641.3	479.8	-16.3	37.40	-1.45	6.79	42.73	632.4	873.1	-74.9	-592.4	554.7	576.1
50	24.186	24.672	735.7	595.1	609.7	595.0	411.6	-14.1	34.03	-1.36	19.34	47.63	646.9	883.2	-213.9	-652.4	625.7	638.3
70	26.928	27.186	669.8	532.4	549.1	532.3	383.4	-12.3	34.93	-1.32	29.71	53.35	632.5	892.0	-313.3	-715.6	696.7	703.3
85	28.974	29.120	628.4	486.6	493.7	486.5	388.7	-9.9	38.22	-1.16	36.18	57.48	611.7	905.2	-361.0	-763.3	749.6	753.4
90	29.643	29.759	618.4	465.7	471.9	465.6	399.4	-7.3	40.25	-.89	37.92	59.07	598.2	906.1	-367.5	-777.2	766.9	769.9
95	30.316	30.402	610.7	443.2	451.2	443.1	411.5	-5.2	42.37	-.67	39.57	60.76	585.3	907.3	-372.8	-791.8	784.3	786.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO2/PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-7.74	-5.23	13.70	49.88	68.84	.0000	.4197	.1785	.0394	.0394	.9453	.0000	.0000	.6643	.7429	.5391	.5180	.7098
10	-7.46	-4.79	14.39	46.27	65.47	.0000	.4002	.1638	.0375	.0375	.9492	.0000	.0000	.6759	.7482	.5562	.5383	.7271
15	-6.91	-4.01	13.90	44.27	62.21	.0000	.3813	.1256	.0298	.0298	.9615	.0000	.0000	.7341	.7426	.5674	.5478	.7453
30	-6.61	-2.97	9.94	38.85	51.78	.0000	.3494	.0359	.0094	.0094	.9897	.0000	.0000	.9138	.7116	.5690	.5709	.7745
50	-6.49	-1.88	6.87	35.39	44.17	.0000	.3601	.0162	.0048	.0048	.9959	.0000	.0000	.9596	.6597	.5262	.5804	.7810
70	-3.76	1.86	7.76	36.26	42.15	.0000	.3986	.0275	.0091	.0090	.9941	.0000	.0000	.9339	.5957	.4675	.5626	.7833
85	-1.17	5.20	9.95	39.38	44.16	.0030	.4504	.0678	.0241	.0230	.9872	.0000	.0000	.8456	.5543	.4242	.5595	.7891
90	-.03	6.54	10.51	41.14	45.15	.0079	.4859	.1074	.0391	.0362	.9804	.0000	.0000	.7720	.5437	.4045	.5258	.7869
95	1.00	7.75	10.94	43.04	46.23	.0166	.5283	.1574	.0587	.0525	.9721	.0000	.0000	.6958	.5352	.3834	.5130	.7849

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5929.	146.65	1.0884	1.3022	88.73	88.94

Table XVII(a) Performance with Tip Radial Distortion, Nominal Stator, Solid Casing

Rotor

80% of Design Speed

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	488.1	917.0	488.1	617.4	.0	677.9	.00	47.67	35.04	-23.02	596.1	671.1	-342.3	262.5	342.3	415.5
10	14.306	16.853	512.9	895.3	512.9	620.7	.0	645.1	.00	46.10	35.80	-18.61	632.4	655.3	-370.0	209.3	370.0	435.9
15	15.361	17.635	529.1	866.9	529.1	614.8	.0	611.0	-.00	44.80	36.89	-14.10	661.7	634.8	-397.3	154.9	397.3	456.1
30	18.427	19.988	553.4	785.8	553.4	595.5	.0	512.7	.00	40.71	40.71	.45	730.4	596.6	-476.6	-4.2	476.6	516.9
50	22.273	23.137	552.4	693.4	552.4	543.0	.0	431.2	.00	38.45	46.18	17.17	798.5	569.5	-576.0	-167.2	576.0	598.4
70	25.934	26.288	464.8	608.3	464.8	460.1	.0	397.9	.00	40.87	55.27	31.53	816.4	540.1	-670.7	-282.0	670.7	679.9
85	28.573	28.641	396.3	559.2	396.3	387.7	.0	402.7	.00	46.11	61.79	41.10	838.6	514.8	-739.0	-338.0	739.0	740.7
90	29.403	29.417	383.9	548.2	383.9	361.2	.0	412.0	.00	48.78	63.21	44.03	851.9	502.3	-760.4	-348.8	760.4	760.8
95	30.215	30.208	377.3	538.6	377.3	337.0	.0	420.1	.00	51.26	64.22	46.98	867.8	494.0	-781.4	-361.2	781.4	781.2

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO2/PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-6.11	.77	13.67	58.06	70.94	.0000	.1368	.0374	.0072	.0072	1.3442	.9765	.9755	1.2814	.4480	.8400	.5477	.6147
10	-5.92	.64	12.15	54.41	65.90	.0000	.2079	.0136	.0028	.0028	1.3488	.9895	.9891	.8015	.4722	.8176	.5837	.5984
15	-5.59	.63	12.49	50.99	62.86	.0000	.2711	.0193	.0044	.0044	1.3432	.9845	.9839	.9149	.4869	.7887	.6112	.5775
30	-4.59	1.03	13.72	40.26	52.98	.0000	.3758	.0258	.0068	.0068	1.3212	.9755	.9745	.9463	.5091	.7088	.6748	.5381
50	-2.43	2.53	12.39	29.01	38.94	.0004	.4496	.0659	.0187	.0186	1.2945	.9277	.9251	.8969	.5062	.6193	.7340	.5086
70	3.92	8.14	11.28	23.74	26.85	.0057	.4984	.0392	.0109	.0093	1.3217	.9571	.9554	.9432	.4241	.5375	.7441	.4772
85	8.32	11.99	11.11	20.69	19.79	.0178	.5534	.0739	.0193	.0147	1.3444	.9243	.9211	.9015	.3597	.4898	.7604	.4507
90	8.97	12.49	11.75	19.18	18.44	.0204	.5815	.1100	.0280	.0228	1.3482	.8899	.8851	.8594	.3479	.4786	.7718	.4386
95	9.13	12.49	12.77	17.25	17.53	.0221	.6051	.1463	.0360	.0305	1.3497	.8552	.8489	.8193	.3418	.4688	.7861	.4300

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.0887	1.3240	94.05	94.29	32.75

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.366	816.4	603.3	546.3	603.0	606.6	-19.8	48.00	-1.89	-14.62	40.81	564.7	796.7	142.4	-520.7	464.2	500.9
10	18.665	19.908	822.2	622.0	580.0	621.8	582.7	-12.4	45.13	-1.14	-9.79	40.30	588.8	815.3	100.0	-527.3	482.7	514.9
15	19.362	20.485	816.4	633.4	596.2	633.2	557.5	-13.0	43.07	-1.18	-5.46	40.60	599.4	834.0	56.8	-542.8	500.7	529.8
30	21.439	22.268	785.2	635.2	622.0	635.1	479.0	-11.6	37.59	-1.04	6.90	42.77	627.2	865.2	-75.4	-587.5	554.5	575.9
50	24.186	24.672	730.6	588.9	603.3	588.8	412.0	-10.1	34.33	-.98	19.49	47.74	640.7	876.0	-213.5	-648.2	625.5	638.1
70	26.928	27.186	665.0	525.6	541.5	525.5	385.9	-8.9	35.48	-.97	29.85	53.56	624.6	885.1	-310.5	-711.9	696.4	703.1
85	28.974	29.120	624.0	478.9	483.6	478.9	394.3	-7.3	39.20	-.87	36.30	57.80	600.0	898.8	-355.0	-760.4	749.3	753.1
90	29.643	29.759	615.1	459.5	462.4	459.5	405.5	-4.4	41.26	-.55	38.01	59.31	586.8	900.3	-361.2	-774.1	766.6	769.6
95	30.316	30.402	608.2	439.3	442.4	439.3	417.4	-1.7	43.34	-.22	39.65	60.86	574.6	902.1	-366.6	-787.9	784.0	786.3

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO2/PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-7.49	-4.98	13.95	49.89	68.84	.0000	.4246	.1784	.0394	.0394	.9459	.0000	.0000	.6692	.7379	.5319	.5121	.7024
10	-7.23	-4.55	14.62	46.28	65.47	.0000	.4042	.1629	.0373	.0373	.9500	.0000	.0000	.6815	.7429	.5493	.5324	.7201
15	-6.65	-3.76	14.18	44.25	62.21	.0000	.3854	.1258	.0298	.0298	.9618	.0000	.0000	.7372	.7373	.5602	.5417	.7377
30	-6.42	-2.79	10.35	38.63	51.78	.0000	.3517	.0367	.0096	.0096	.9896	.0000	.0000	.9127	.7071	.5631	.5659	.7670
50	-6.20	-1.59	7.25	35.31	44.18	.0000	.3626	.0163	.0048	.0048	.9959	.0000	.0000	.9597	.6548	.5204	.5746	.7741
70	-3.21	2.41	8.11	36.45	42.15	.0001	.4040	.0311	.0102	.0102	.9934	.0000	.0000	.9270	.5911	.4612	.5551	.7766
85	-.21	6.16	10.23	40.08	44.16	.0048	.4606	.0760	.0270	.0253	.9859	.0000	.0000	.8324	.5500	.4170	.5288	.7826
90	.96	7.53	10.85	41.81	45.15	.0115	.4951	.1156	.0421	.0379	.9792	.0000	.0000	.7609	.5403	.3986	.5154	.7810
95	1.96	8.71	11.39	43.56	46.23	.0221	.5342	.1626	.0606	.0524	.9714	.0000	.0000	.6892	.5326	.3797	.5032	.7797

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5927.	145.24	1.0887	1.3028	88.60	88.82

Table XVII(a) Performance with Tip Radial Distortion, Nominal Stator, Solid Casing

80% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	483.9	913.0	483.9	610.5	.0	678.7	.00	48.02	35.25	-23.34	592.5	665.2	-342.0	263.6	342.0	413.1
10	14.306	16.853	507.8	890.5	507.8	614.4	.0	644.5	.00	46.36	36.05	-18.77	628.1	649.3	-369.6	209.0	369.6	435.5
15	15.361	17.635	523.4	861.9	523.4	609.0	.0	609.8	.00	45.03	37.16	-14.16	656.9	628.9	-396.9	154.2	396.9	455.7
30	18.427	19.988	547.5	731.6	547.5	589.9	.0	512.6	.00	40.97	40.99	.42	725.6	591.0	-476.1	-3.9	476.1	516.5
50	22.273	23.137	546.0	690.2	546.0	538.1	.0	432.1	.00	38.77	46.48	17.17	793.7	564.3	-575.5	-165.7	575.5	597.8
70	25.934	26.288	458.5	605.9	458.5	455.0	.0	400.0	.00	41.34	55.61	31.57	812.4	534.4	-670.1	-279.3	670.1	679.2
85	28.573	28.641	390.6	557.3	390.6	381.5	.0	406.0	.00	46.80	62.11	41.22	835.4	507.3	-738.3	-334.0	738.3	740.0
90	29.403	29.417	378.6	546.7	378.6	355.1	.0	415.3	.00	49.49	63.51	44.19	848.9	495.2	-759.7	-344.8	759.7	760.1
95	30.215	30.208	372.3	537.2	372.3	330.9	.0	423.3	.00	51.99	64.50	47.20	865.0	487.0	-780.7	-357.3	780.7	780.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-5.90	.98	13.35	58.59	70.95	.0000	.1417	.0431	.0083	.0083	1.3431	.9734	.9723	1.3513	.4439	.8358	.5441	.6090
10	-5.67	.89	12.00	54.61	65.90	.0000	.2118	.0170	.0036	.0036	1.3472	.9874	.9869	.7763	.4672	.8126	.5793	.5925
15	-5.32	.90	12.42	51.32	62.86	.0000	.2743	.0207	.0047	.0047	1.3418	.9838	.9831	.9114	.4814	.7837	.6065	.5718
30	-4.31	1.31	13.69	40.57	52.99	.0000	.3793	.0263	.0069	.0069	1.3207	.9753	.9743	.9456	.5034	.7046	.6701	.5328
50	-2.12	2.84	12.38	29.32	38.94	.0005	.4532	.0657	.0186	.0185	1.2954	.9289	.9262	.8977	.5000	.6161	.7292	.5038
70	4.29	8.50	11.32	24.04	26.85	.0062	.5038	.0420	.0117	.0099	1.3224	.9548	.9529	.9397	.4178	.5351	.7400	.4720
85	8.65	12.33	11.23	20.89	19.79	.0188	.5618	.0810	.0212	.0162	1.3445	.9183	.9147	.8932	.3542	.4879	.7573	.4441
90	9.27	12.79	11.91	19.32	18.44	.0216	.5898	.1170	.0297	.0242	1.3484	.8844	.8794	.8519	.3430	.4771	.7690	.4322
95	9.41	12.76	12.99	17.31	17.53	.0232	.6133	.1531	.0375	.0318	1.3498	.8502	.8437	.8125	.3371	.4674	.7834	.4237

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.0889	1.3241	93.89	94.13	32.447

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	813.0	595.5	540.2	595.1	607.4	-22.2	48.35	-2.14	-14.90	41.29	559.1	792.0	143.6	-522.6	463.8	500.4
10	18.665	19.908	817.5	614.2	573.8	614.0	582.2	-14.3	45.42	-1.34	-9.89	40.73	582.7	810.3	99.9	-528.7	482.3	514.4
15	19.362	20.485	811.3	624.9	590.1	624.7	556.5	-15.1	43.31	-1.38	-5.46	41.06	593.3	828.6	56.2	-544.4	500.3	529.3
30	21.439	22.268	780.1	627.7	615.7	627.6	478.9	-14.7	37.87	-1.34	6.93	43.23	620.9	861.5	-75.0	-590.1	554.0	575.4
50	24.186	24.672	726.0	583.0	597.1	582.8	412.9	-12.8	34.66	-1.26	19.56	48.13	634.4	873.5	-212.0	-650.3	624.9	637.5
70	26.928	27.186	660.6	519.5	534.8	519.4	387.8	-11.1	35.96	-1.22	29.96	53.94	617.5	882.8	-308.0	-713.5	695.8	702.4
85	28.974	29.120	619.8	471.6	475.4	471.5	397.5	-8.8	39.91	-1.07	36.46	58.22	591.2	895.6	-351.2	-761.3	748.6	752.4
90	29.643	29.759	611.3	453.1	454.4	453.1	408.6	-6.1	41.97	-.77	38.19	59.69	578.1	897.9	-357.3	-775.1	765.9	768.9
95	30.316	30.402	604.5	434.5	434.2	434.5	420.5	-4.0	44.08	-.52	39.88	61.18	565.8	901.2	-362.8	-789.5	783.3	785.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-7.14	-4.63	13.69	50.49	68.84	.0000	.4327	.1789	.0395	.0395	.9462	.0000	.0000	.6747	.7344	.5246	.5068	.6977
10	-6.94	-4.26	14.43	46.75	65.47	.0000	.4107	.1615	.0370	.0370	.9509	.0000	.0000	.6892	.7383	.5421	.5266	.7152
15	-6.41	-3.52	13.98	44.69	62.21	.0000	.3922	.1256	.0298	.0298	.9623	.0000	.0000	.7424	.7322	.5523	.5358	.7324
30	-6.15	-2.52	10.05	39.21	51.78	.0000	.3580	.0366	.0096	.0096	.9897	.0000	.0000	.9145	.7021	.5561	.5599	.7632
50	-5.86	-1.26	6.97	35.92	44.18	.0000	.3683	.0159	.0047	.0047	.9960	.0000	.0000	.9610	.6503	.5149	.5686	.7715
70	-2.73	2.89	7.85	37.18	42.14	.0002	.4113	.0340	.0112	.0111	.9929	.0000	.0000	.9213	.5868	.4556	.5485	.7740
85	.49	6.86	10.04	40.98	44.16	.0065	.4715	.0843	.0300	.0276	.9845	.0000	.0000	.8186	.5459	.4103	.5206	.7791
90	1.67	8.24	10.63	42.75	45.15	.0144	.5052	.1230	.0448	.0395	.9781	.0000	.0000	.7508	.5366	.3928	.5075	.7784
95	2.71	9.46	11.09	44.61	46.24	.0269	.5427	.1668	.0622	.0521	.9710	.0000	.0000	.6844	.5290	.3753	.4952	.7783

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5922.	143.85	1.0889	1.3028	88.40	88.62

Table XVII(b) Performance with Tip Radial Distortion, Nominal Stator, Solid Casing

90% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	572.9	1046.1	572.9	710.5	.0	767.8	.00	47.22	33.92	-22.89	690.4	771.5	-385.3	300.1	385.3	467.7
10	14.306	16.853	601.3	1020.8	601.3	715.3	.0	728.2	.00	45.51	34.70	-18.35	731.5	754.0	-416.5	237.6	416.5	490.6
15	15.361	17.635	620.0	987.8	620.0	705.4	.0	691.4	-.00	44.41	35.79	-14.12	764.5	728.2	-447.2	178.0	447.2	513.4
30	18.427	19.988	649.6	892.6	649.6	675.8	.0	583.1	.00	40.77	39.53	-.05	842.6	676.9	-536.4	1.2	536.4	581.9
50	22.273	23.137	650.2	784.7	650.2	609.8	.0	493.9	.00	39.01	44.90	16.48	918.7	637.3	-648.4	-179.7	648.4	673.8
70	25.934	26.288	559.6	686.0	559.6	523.0	.0	444.0	.00	40.34	53.45	31.57	940.2	614.5	-755.0	-321.3	755.0	765.3
85	28.573	28.641	485.8	631.3	485.8	457.8	.0	434.5	.00	43.52	59.71	41.11	963.5	607.8	-831.8	-399.3	831.8	833.8
90	29.403	29.417	471.2	615.2	471.2	427.2	.0	442.3	.00	46.02	61.16	44.13	977.2	595.3	-856.0	-414.1	856.0	856.4
95	30.215	30.208	463.2	600.2	463.2	396.7	.0	450.4	.00	48.63	62.23	47.24	994.1	584.4	-879.6	-429.0	879.6	879.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-7.22	-.33	13.70	56.81	70.83	.0000	.1391	.0448	.0087	.0087	1.4488	.9711	.9695	1.3488	.5290	.9664	.6380	.7127
10	-7.01	-.43	12.35	53.05	65.82	.0000	.2073	.0157	.0033	.0033	1.4553	.9875	.9868	.7953	.5574	.9391	.6792	.6937
15	-6.68	-.45	12.46	49.91	62.83	.0000	.2730	.0261	.0059	.0059	1.4471	.9790	.9779	.8951	.5751	.9041	.7110	.6665
30	-5.78	-.14	13.21	39.58	52.95	.0005	.3864	.0437	.0115	.0114	1.4144	.9590	.9569	.9183	.6033	.8071	.7847	.6121
50	-3.76	1.22	11.70	28.42	38.92	.0016	.4683	.0866	.0246	.0241	1.3792	.9062	.9018	.8780	.6027	.7001	.8522	.5686
70	1.97	6.20	11.32	21.88	26.84	.0083	.5013	.0322	.0089	.0066	1.4179	.9638	.9619	.9562	.5170	.6044	.8637	.5414
85	6.17	9.86	11.12	18.99	19.78	.0199	.5260	.0251	.0066	.0014	1.4543	.9724	.9709	.9662	.4451	.5512	.8788	.5366
90	6.91	10.44	11.86	17.03	18.44	.0227	.5510	.0604	.0153	.0096	1.4571	.9369	.9335	.9241	.4301	.5350	.8903	.5177
95	7.14	10.50	13.03	14.99	17.52	.0248	.5754	.1016	.0249	.0188	1.4556	.8959	.8902	.8778	.4221	.5199	.9057	.5062

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1119	1.4203	94.11	94.40	37.36

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	928.8	682.7	624.7	682.2	687.2	-25.6	47.73	-2.15	-14.78	40.83	646.2	901.6	164.7	-589.5	522.6	563.8
10	18.665	19.908	935.5	697.9	665.4	697.7	657.5	-18.3	44.66	-1.50	-9.74	40.59	675.4	918.8	114.1	-597.9	543.4	579.6
15	19.362	20.485	928.8	707.1	682.0	706.8	630.4	-18.9	42.74	-1.54	-5.60	41.04	685.7	937.1	66.8	-615.3	563.7	596.4
30	21.439	22.268	892.8	708.9	707.6	708.6	544.2	-17.6	37.55	-1.42	6.43	43.22	712.8	972.5	-79.9	-665.9	624.1	648.3
50	24.186	24.672	831.2	659.3	684.0	659.1	472.2	-15.7	34.62	-1.37	18.74	48.07	723.1	986.7	-231.9	-734.0	704.1	718.3
70	26.928	27.186	755.9	591.1	620.3	590.9	432.1	-14.6	34.86	-1.42	29.57	53.75	713.5	999.6	-351.9	-806.1	783.9	791.4
85	28.974	29.120	711.3	543.7	569.1	543.6	426.5	-10.8	36.86	-1.14	36.24	57.66	705.6	1016.3	-417.0	-858.5	843.5	847.7
90	29.643	29.759	698.3	517.7	545.2	517.6	436.0	-9.2	38.66	-1.02	38.07	59.41	692.6	1017.3	-426.9	-875.5	863.0	866.3
95	30.316	30.402	686.5	489.9	520.3	489.8	447.7	-9.0	40.71	-1.06	39.88	61.29	678.1	1019.5	-434.8	-894.1	882.6	885.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-7.78	-5.27	13.68	49.89	68.84	.0000	.4287	.1748	.0386	.0386	.9351	.0000	.0000	.6957	.8426	.5995	.5887	.7917
10	-7.68	-5.00	14.26	46.16	65.46	.0000	.4144	.1720	.0394	.0394	.9354	.0000	.0000	.6906	.8486	.6140	.6131	.8083
15	-6.97	-4.08	13.82	44.20	62.20	.0000	.4001	.1414	.0335	.0335	.9475	.0000	.0000	.7333	.8417	.6228	.6219	.8255
30	-6.43	-2.60	9.96	38.98	51.77	.0000	.3678	.0468	.0122	.0122	.9837	.0000	.0000	.9001	.8060	.6261	.6447	.8589
50	-5.89	-1.28	6.86	35.98	44.16	.0001	.3782	.0177	.0052	.0052	.9945	.0000	.0000	.9601	.7447	.5798	.6487	.8678
70	-3.81	1.83	7.67	36.28	42.17	.0008	.4117	.0255	.0084	.0081	.9933	.0000	.0000	.9412	.6702	.5160	.6335	.8726
85	-2.48	3.91	9.98	37.99	44.13	.0037	.4536	.0663	.0235	.0222	.9846	.0000	.0000	.8519	.6253	.4711	.6205	.8806
90	-1.57	5.00	10.39	39.68	45.15	.0076	.4903	.1064	.0387	.0359	.9762	.0000	.0000	.7823	.6117	.4466	.6064	.8775
95	-.66	6.09	10.55	41.77	46.23	.0147	.5341	.1523	.0568	.0513	.9671	.0000	.0000	.7210	.5993	.4206	.5922	.8753

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
6672.	165.67	1.1119	1.3922	88.70	88.91

Table XVII(b) Performance with Tip Radial Distortion, Nominal Stator, Solid Casing

90% of Design Speed

Rotor

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	564.7	1038.7	564.7	696.6	.0	770.4	.00	47.87	34.21	-23.59	682.9	760.5	-383.9	304.3	383.9	466.0
10	14.306	16.853	592.7	1012.4	592.7	703.6	.0	727.9	.00	45.97	35.00	-18.74	723.5	743.4	-415.0	239.0	415.0	488.9
15	15.361	17.635	611.3	979.7	611.3	695.4	.0	690.0	.00	44.76	36.08	-14.34	756.5	718.7	-445.6	178.4	445.6	511.6
30	18.427	19.988	640.4	885.7	640.4	667.9	.0	581.6	.00	41.03	39.83	-.10	834.3	669.1	-534.5	1.8	534.5	579.8
50	22.273	23.137	641.5	780.7	641.5	607.0	.0	491.0	.00	38.97	45.18	16.59	910.9	634.7	-646.1	-180.2	646.1	671.2
70	25.934	26.288	549.1	687.2	549.1	518.6	.0	450.8	.00	41.01	53.87	31.03	931.9	605.7	-752.3	-311.8	752.3	762.6
85	28.573	28.641	475.9	634.6	475.9	445.5	.0	451.6	.00	45.41	60.13	40.43	956.0	585.3	-828.9	-379.2	828.9	830.8
90	29.403	29.417	462.5	619.2	462.5	413.1	.0	460.7	.00	48.14	61.52	43.58	970.4	570.3	-852.9	-392.6	852.9	853.4
95	30.215	30.208	455.9	605.4	455.9	383.1	.0	468.8	.00	50.75	62.52	46.77	988.0	559.4	-876.5	-407.5	876.5	876.3

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-6.93	-.04	12.99	57.80	70.82	.0000	.1466	.0508	.0098	.0098	1.4471	.9680	.9663	1.4443	.5210	.9583	.6304	.7016
10	-6.72	-.14	11.95	53.73	65.81	.0000	.2131	.0186	.0039	.0039	1.4523	.9858	.9851	.7874	.5488	.9303	.6711	.6831
15	-6.39	-.16	12.23	50.42	62.83	.0000	.2775	.0257	.0058	.0058	1.4446	.9796	.9785	.8996	.5665	.8959	.7029	.6571
30	-5.48	.16	13.16	39.94	52.96	.0005	.3892	.0392	.0103	.0102	1.4138	.9634	.9616	.9268	.5942	.8004	.7763	.6046
50	-3.46	1.51	11.81	28.60	38.93	.0017	.4657	.0761	.0216	.0211	1.3810	.9180	.9142	.8918	.5938	.6966	.8444	.5662
70	2.47	6.69	10.78	22.84	26.84	.0088	.5087	.0333	.0093	.0069	1.4233	.9635	.9617	.9549	.5055	.6051	.8553	.5334
85	6.65	10.33	10.44	19.70	19.79	.0210	.5520	.0506	.0134	.0078	1.4587	.9482	.9454	.9356	.4346	.5531	.8718	.5102
90	7.29	10.81	11.30	17.95	18.44	.0238	.5804	.0896	.0230	.0169	1.4610	.9109	.9061	.8915	.4215	.5375	.8841	.4950
95	7.42	10.78	12.56	15.75	17.52	.0256	.6048	.1300	.0321	.0258	1.4597	.8722	.8653	.8484	.4151	.5235	.9000	.4837

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1126	1.4225	93.95	94.25	36.94

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	922.4	866.9	612.3	666.4	689.7	-26.0	48.40	-2.24	-15.44	41.42	635.4	888.7	169.0	-587.9	520.7	561.8
10	18.665	19.908	927.3	681.7	653.9	681.5	657.4	-18.2	45.15	-1.53	-10.06	41.16	664.3	905.1	115.9	-595.7	541.5	577.5
15	19.362	20.485	920.5	692.8	671.7	692.6	629.2	-18.0	43.12	-1.49	-5.75	41.48	675.6	924.4	67.5	-612.3	561.7	594.2
30	21.439	22.268	884.3	697.1	697.8	696.8	543.0	-17.0	37.88	-1.40	6.44	43.57	703.0	961.9	-78.9	-663.0	621.9	646.0
50	24.186	24.672	824.0	648.7	677.4	648.5	469.2	-14.8	34.71	-1.30	18.95	48.40	717.0	977.1	-232.4	-730.5	701.6	715.7
70	26.928	27.186	752.6	581.8	612.2	581.6	437.7	-13.3	35.57	-1.31	29.30	54.04	702.4	990.8	-343.5	-801.9	781.2	788.6
85	28.974	29.120	710.1	536.6	555.0	536.5	442.7	-9.4	38.59	-1.00	35.65	57.87	683.0	1008.8	-397.8	-854.1	840.5	844.7
90	29.643	29.759	697.4	512.4	529.3	512.4	453.8	-7.7	40.62	-.86	37.51	59.53	667.2	1010.7	-406.1	-871.0	859.9	863.3
95	30.316	30.402	686.7	488.0	504.5	487.9	465.9	-7.7	42.72	-.90	39.34	61.26	652.3	1014.6	-413.5	-889.6	879.4	881.9

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-7.13	-4.61	13.59	50.64	68.84	.0000	.4425	.1752	.0387	.0387	.9357	.0000	.0000	.7054	.8357	.5846	.5783	.7790
10	-7.19	-4.51	14.24	46.68	65.47	.0000	.4266	.1715	.0393	.0393	.9365	.0000	.0000	.7010	.8402	.5988	.6026	.7950
15	-6.59	-3.70	13.86	44.61	62.20	.0000	.4096	.1386	.0329	.0329	.9493	.0000	.0000	.7452	.8333	.6095	.6122	.8132
30	-6.11	-2.48	9.99	39.28	51.76	.0000	.3746	.0427	.0112	.0112	.9853	.0000	.0000	.9109	.7976	.6150	.6353	.8487
50	-5.80	-1.19	6.92	36.01	44.16	.0001	.3843	.0179	.0053	.0053	.9945	.0000	.0000	.9602	.7381	.5702	.6429	.8589
70	-3.10	2.53	7.77	36.88	42.16	.0013	.4233	.0329	.0108	.0104	.9915	.0000	.0000	.9277	.6672	.5072	.6230	.8638
85	-.78	5.60	10.11	39.59	44.15	.0079	.4700	.0722	.0256	.0228	.9833	.0000	.0000	.8474	.6235	.4639	.5996	.8721
90	.36	6.93	10.54	41.48	45.15	.0150	.5056	.1087	.0396	.0341	.9758	.0000	.0000	.7861	.6099	.4410	.5834	.8698
95	1.35	8.10	10.71	43.63	46.23	.0258	.5462	.1504	.0561	.0465	.9676	.0000	.0000	.7279	.5984	.4180	.5685	.8692

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
6648.	163.84	1.1126	1.3942	88.55	88.79

Table XVII(b) Performance with Tip Radial Distortion, Nominal Stator, Solid Casing

Rotor

90% of Design Speed

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	554.9	1027.8	554.9	681.4	.0	769.4	.00	48.47	34.74	-23.91	675.3	745.7	-384.9	302.3	384.9	467.2
10	14.306	16.853	582.8	1000.3	582.8	688.2	.0	725.9	.00	46.52	35.52	-18.90	716.0	727.8	-416.0	235.9	416.0	490.1
15	15.361	17.635	601.1	967.6	601.1	680.3	.0	688.0	.00	45.31	36.61	-14.39	748.9	703.2	-446.7	175.2	446.7	512.8
30	18.427	19.988	629.8	875.6	629.8	654.6	.0	581.4	.00	41.59	40.37	.04	827.0	655.8	-535.8	.1	535.8	581.2
50	22.273	23.137	630.3	773.0	630.3	595.3	.0	493.1	.00	39.64	45.76	16.85	904.1	623.4	-647.7	-179.7	647.7	672.8
70	25.934	26.288	539.3	682.1	539.3	508.1	.0	454.9	.00	41.86	54.42	31.36	927.6	595.6	-754.1	-309.5	754.1	764.4
85	28.573	28.641	466.3	631.3	466.3	435.3	.0	457.1	.00	46.42	60.69	40.83	952.9	575.3	-830.9	-375.8	830.9	832.8
90	29.403	29.417	451.9	617.3	451.9	404.7	.0	465.7	.00	49.03	62.14	43.95	967.1	562.1	-855.0	-389.7	855.0	855.4
95	30.215	30.208	444.0	605.0	444.0	376.1	.0	473.8	.00	51.56	63.19	47.09	984.4	552.5	-878.6	-404.6	878.8	878.4

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-6.40	.49	12.67	58.66	70.83	.0000	.1586	.0499	.0096	.0096	1.4483	.9692	.9676	1.6015	.5116	.9464	.6230	.6866
10	-6.20	.38	11.80	54.41	65.82	.0000	.2261	.0224	.0047	.0047	1.4509	.9836	.9827	.8112	.5392	.9173	.6636	.6674
15	-5.87	.36	12.18	51.00	62.84	.0000	.2902	.0295	.0067	.0067	1.4430	.9772	.9760	.8958	.5564	.8830	.6951	.6417
30	-4.94	.70	13.30	40.34	52.96	.0007	.3998	.0395	.0104	.0102	1.4149	.9638	.9620	.9284	.5836	.7900	.7686	.5916
50	-2.89	2.09	12.07	28.91	38.93	.0022	.4750	.0739	.0209	.0203	1.3857	.9218	.9181	.8964	.5827	.6888	.8371	.5554
70	3.01	7.24	11.11	23.06	26.84	.0101	.5189	.0342	.0095	.0067	1.4288	.9633	.9614	.9543	.4962	.5999	.8505	.5238
85	7.20	10.88	10.84	19.66	19.79	.0233	.5631	.0524	.0138	.0077	1.4658	.9474	.9445	.9343	.4258	.5497	.8682	.5009
90	7.90	11.42	11.67	18.19	18.44	.0264	.5892	.0872	.0222	.0155	1.4704	.9149	.9102	.8954	.4116	.5353	.8802	.4875
95	8.10	11.46	12.88	16.10	17.52	.0286	.6122	.1244	.0305	.0235	1.4717	.8801	.8734	.8558	.4040	.5226	.8958	.4773

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1134	1.4266	94.04	94.33	36.46

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	913.2	650.8	599.2	650.3	689.0	-26.9	48.99	-2.37	-15.58	42.23	622.2	878.1	167.0	-590.1	522.0	563.2
10	18.665	19.908	915.8	665.5	639.3	665.3	655.7	-17.1	45.72	-1.47	-10.02	41.85	649.5	893.2	112.9	-596.0	542.8	578.9
15	19.362	20.485	908.2	677.2	656.6	676.9	627.4	-17.3	43.69	-1.47	-5.61	42.16	660.2	913.3	64.3	-613.0	563.0	595.7
30	21.439	22.268	872.7	683.2	683.3	683.0	542.7	-17.4	38.45	-1.46	6.72	44.23	688.8	953.3	-80.7	-664.9	623.4	647.5
50	24.186	24.672	813.7	636.5	663.5	636.3	471.1	-14.9	35.37	-1.34	19.30	49.01	703.8	970.4	-232.2	-732.3	703.3	717.4
70	26.928	27.186	744.4	570.7	599.2	570.5	441.5	-13.5	36.39	-1.35	29.69	54.64	690.1	986.1	-341.5	-804.0	783.0	790.5
85	28.974	29.120	703.4	525.1	541.9	525.0	448.2	-9.4	39.60	-1.02	36.05	58.48	670.3	1004.4	-394.3	-856.2	842.5	846.8
90	29.643	29.759	692.0	503.7	517.8	503.6	458.8	-7.6	41.55	-.86	37.92	60.02	656.3	1007.9	-403.2	-873.0	862.0	865.4
95	30.316	30.402	682.8	483.1	494.4	483.0	471.0	-7.4	43.61	-.88	39.71	61.55	642.7	1013.9	-410.6	-891.5	881.6	884.1

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-6.55	-4.03	13.46	51.36	68.84	.0000	.4545	.1773	.0392	.0392	.9361	.0000	.0000	.7092	.8259	.5696	.5653	.7685
10	-6.62	-3.94	14.30	47.20	65.47	.0000	.4364	.1704	.0390	.0390	.9382	.0000	.0000	.7088	.8284	.5836	.5880	.7833
15	-6.03	-3.14	13.88	45.16	62.20	.0000	.4182	.1360	.0322	.0322	.9513	.0000	.0000	.7543	.8208	.5948	.5972	.8021
30	-5.54	-1.91	9.93	39.90	51.76	.0000	.3822	.0412	.0108	.0108	.9862	.0000	.0000	.9153	.7857	.6018	.6214	.8397
50	-5.13	-.52	6.68	36.71	44.16	.0001	.3922	.0191	.0056	.0056	.9943	.0000	.0000	.9583	.7277	.5587	.6301	.8517
70	-2.27	3.36	7.73	37.75	42.16	.0020	.4335	.0395	.0130	.0123	.9900	.0000	.0000	.9148	.6588	.4968	.6111	.8583
85	.23	6.61	10.09	40.62	44.15	.0108	.4840	.0863	.0307	.0268	.9804	.0000	.0000	.8241	.6167	.4532	.5877	.8668
90	1.28	7.84	10.54	42.42	45.15	.0192	.5170	.1208	.0439	.0370	.9736	.0000	.0000	.7684	.6045	.4329	.5732	.8662
95	2.24	8.99	10.73	44.49	46.23	.0315	.5533	.1580	.0589	.0472	.9664	.0000	.0000	.7166	.5943	.4134	.5595	.8676

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
6664.	161.68	1.1134	1.3976	88.60	88.80

Table XVII(c) Performance with Tip Radial Distortion, Nominal Stator, Solid Casing

Rotor

95% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	611.1	1107.8	611.1	747.4	.0	817.6	.00	47.57	33.59	-23.49	733.6	815.2	-405.9	324.9	405.9	492.7
10	14.306	16.853	641.6	1079.0	641.6	754.2	.0	771.6	.00	45.65	34.36	-18.64	777.3	796.3	-438.8	254.7	438.8	516.9
15	15.361	17.635	661.8	1043.5	661.8	743.0	.0	732.6	.00	44.58	35.44	-14.43	812.4	768.0	-471.1	191.7	471.1	540.9
30	18.427	19.988	694.8	942.8	694.8	711.2	.0	618.9	.00	41.02	39.11	-.42	895.7	712.4	-565.1	5.9	565.1	613.0
50	22.273	23.137	697.1	828.5	697.1	642.6	.0	523.0	.00	39.14	44.40	16.25	976.4	670.9	-683.1	-186.6	683.1	709.6
70	25.934	26.288	606.3	723.3	606.3	551.5	.0	468.0	.00	40.33	52.68	31.53	1000.6	647.7	-795.4	-338.2	795.4	806.2
85	28.573	28.641	530.0	662.9	530.0	479.1	.0	457.9	.00	43.73	58.83	41.29	1024.3	637.8	-876.3	-420.5	876.3	878.4
90	29.403	29.417	514.6	644.8	514.6	445.6	.0	465.6	.00	46.29	60.28	44.44	1038.4	624.1	-901.8	-436.6	901.8	902.2
95	30.215	30.208	506.2	628.9	506.2	414.7	.0	472.8	.00	48.74	61.36	47.57	1055.9	614.8	-926.7	-453.7	926.7	926.5

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO1	PO2/ TOTAL	EFF-P TOTAL	EFF-AD STATIC	EFF-P	M-1	M-2	M'-1	M'-2
5	-7.54	-.65	13.03	57.08	70.76	.0000	.1458	.0541	.0104	.0104	1.5082	.9654	.9634	1.4618	.5661	1.0274	.6799	.7560
10	-7.35	-.76	12.01	53.00	65.76	.0000	.2130	.0234	.0049	.0049	1.5130	.9822	.9811	.7480	.5968	.9960	.7239	.7350
15	-7.03	-.80	12.15	49.86	62.82	.0001	.2795	.0342	.0077	.0077	1.5031	.9730	.9714	.8738	.6163	.9576	.7582	.7048
30	-6.20	-.56	12.84	39.53	52.94	.0011	.3941	.0494	.0130	.0127	1.4673	.9540	.9514	.9126	.6485	.8534	.8379	.6448
50	-4.26	.72	11.47	28.15	38.91	.0028	.4744	.0869	.0247	.0239	1.4287	.9065	.9017	.8830	.6498	.7389	.9108	.5983
70	1.24	5.47	11.27	21.15	26.84	.0100	.5061	.0315	.0068	.0060	1.4709	.9644	.9624	.9587	.5619	.6361	.9235	.5696
85	5.33	9.01	11.30	17.54	19.78	.0218	.5328	.0269	.0070	.0014	1.5108	.9705	.9687	.9653	.4867	.5771	.9381	.5552
90	6.04	9.56	12.16	15.84	18.44	.0246	.5576	.0625	.0158	.0096	1.5131	.9349	.9310	.9246	.4712	.5588	.9497	.5409
95	6.26	9.62	13.36	13.79	17.52	.0268	.5791	.1008	.0245	.0180	1.5114	.8968	.8907	.8833	.4628	.5428	.9655	.5306

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1246	1.4739	93.93	94.25	39.29

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.366	982.4	716.3	655.0	715.7	732.0	-28.6	48.18	-2.29	-15.50	41.02	679.8	948.6	181.5	-622.6	550.5	394.0
10	18.665	19.908	987.4	728.8	699.5	728.4	696.7	-21.5	44.88	-1.69	-10.08	40.95	710.7	964.5	124.3	-632.1	572.4	610.6
15	19.362	20.485	979.7	737.5	716.6	737.3	667.8	-20.9	42.97	-1.62	-5.90	41.36	721.0	982.3	74.0	-649.1	593.8	628.3
30	21.439	22.268	942.1	734.0	744.2	733.8	577.5	-17.6	37.80	-1.37	6.12	43.67	749.2	1014.6	-80.0	-700.5	657.5	682.9
50	24.186	24.672	878.3	691.0	722.0	690.8	500.1	-16.8	34.70	-1.40	18.51	48.23	762.3	1037.4	-241.6	-773.5	741.8	756.7
70	26.928	27.186	798.7	616.7	656.1	616.5	455.5	-16.2	34.78	-1.51	29.44	54.04	753.8	1050.2	-370.3	-850.0	825.9	833.8
85	28.974	29.120	749.6	566.3	599.8	566.2	449.5	-11.4	36.86	-1.15	36.22	57.95	743.5	1067.3	-439.2	-904.5	888.6	893.1
90	29.643	29.759	734.5	538.0	573.1	537.9	459.2	-9.6	38.71	-1.02	38.14	59.75	728.8	1067.9	-449.9	-922.3	909.1	912.7
95	30.316	30.402	722.0	507.8	548.0	507.7	470.1	-9.9	40.62	-1.12	39.99	61.69	715.3	1070.4	-459.7	-942.3	929.8	932.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO1	PO2/ TOTAL	EFF-P TOTAL	EFF-AD STATIC	EFF-P	M-1	M-2	M'-1	M'-2
5	-7.36	-4.85	13.54	50.47	68.84	.0000	.4361	.1773	.0392	.0392	.9285	.0000	.0000	.7050	.8921	.6270	.8205	.8304
10	-7.44	-4.75	14.07	46.58	65.46	.0000	.4235	.1786	.0409	.0409	.9273	.0000	.0000	.6939	.8966	.6392	.6462	.8459
15	-6.74	-3.84	13.73	44.59	62.20	.0000	.4094	.1495	.0354	.0354	.9399	.0000	.0000	.7324	.8886	.6478	.6548	.8627
30	-6.18	-2.55	10.02	39.17	51.76	.0000	.3833	.0701	.0184	.0184	.9735	.0000	.0000	.8616	.8513	.6461	.6782	.8931
50	-5.80	-1.19	6.82	36.10	44.15	.0004	.3851	.0222	.0066	.0064	.9925	.0000	.0000	.9527	.7873	.6062	.6841	.9100
70	-3.90	1.74	7.58	36.28	42.17	.0016	.4213	.0311	.0102	.0097	.9911	.0000	.0000	.9327	.7077	.5366	.6688	.9137
85	-2.47	3.91	9.96	38.01	44.14	.0054	.4624	.0642	.0228	.0209	.9838	.0000	.0000	.8621	.6577	.4888	.6525	.9211
90	-1.52	5.05	10.38	39.74	45.15	.0100	.4994	.1015	.0369	.0333	.9754	.0000	.0000	.8004	.6419	.4621	.6367	.9171
95	-.76	5.99	10.49	41.74	46.23	.0171	.5442	.1484	.0553	.0489	.9653	.0000	.0000	.7388	.6287	.4339	.6232	.9146

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7029.	174.27	1.1246	1.4387	87.99	88.23

Table XVII(c) Performance with Tip Radial Distortion, Nominal Stator, Solid Casing

95% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	604.5	1099.1	604.5	735.6	.0	816.5	.00	47.98	33.89	-23.74	728.3	803.9	-406.1	323.6	406.1	492.9
10	14.306	16.853	634.7	1069.4	634.7	743.0	.0	769.1	.00	45.98	34.66	-18.71	771.7	784.9	-439.0	252.0	439.0	517.1
15	15.361	17.635	654.3	1034.4	654.3	733.0	.0	729.7	-.00	44.86	35.76	-14.38	806.5	757.6	-471.3	188.6	471.3	541.1
30	18.427	19.988	686.6	935.8	686.6	702.5	.0	618.2	.00	41.33	39.46	-.34	889.5	703.7	-565.4	4.9	565.4	613.3
50	22.273	23.137	680.6	823.9	688.6	634.8	.0	525.2	.00	39.60	44.76	16.29	970.6	662.9	-683.4	-184.8	683.4	709.9
70	25.934	26.288	596.9	720.6	596.9	543.4	.0	473.2	.00	41.06	53.12	31.54	995.2	638.3	-795.8	-333.4	795.8	806.6
85	28.573	28.641	521.6	663.3	521.6	472.3	.0	465.5	.00	44.61	59.24	41.21	1020.3	627.9	-876.7	-413.3	876.7	878.8
90	29.403	29.417	506.8	647.6	506.8	439.2	.0	475.4	.00	47.29	60.67	44.24	1034.9	613.1	-902.2	-427.3	902.2	902.6
95	30.215	30.208	499.1	633.5	499.1	406.9	.0	485.5	.00	50.04	61.71	47.33	1052.9	600.4	-927.1	-441.4	927.1	926.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO1	PO2/ TOTAL	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-7.24	-.35	12.79	57.63	70.76	.0000	.1547	.0534	.0103	.0103	1.5083	.9663	.9643	1.5737	.5596	1.0177	.6745	.7443
10	-7.05	-.46	11.94	53.37	65.77	.0000	.2213	.0237	.0050	.0050	1.5114	.9822	.9811	.7919	.5898	.9856	.7182	.7234
15	-6.71	-.48	12.19	50.14	62.82	.0001	.2862	.0317	.0072	.0072	1.5024	.9750	.9736	.8891	.6089	.9479	.7520	.6943
30	-5.85	-.21	12.91	39.80	52.94	.0012	.3994	.0444	.0117	.0114	1.4698	.9589	.9566	.9224	.6402	.8462	.8314	.6363
50	-3.89	1.09	11.51	28.47	38.92	.0030	.4802	.0832	.0236	.0228	1.4339	.9118	.9072	.8888	.6411	.7341	.9045	.5906
70	1.70	5.92	11.29	21.58	26.84	.0109	.5147	.0307	.0085	.0055	1.4781	.9660	.9641	.9601	.5525	.6331	.9177	.5608
85	5.75	9.43	11.21	18.04	19.78	.0231	.5433	.0294	.0077	.0016	1.5197	.9686	.9667	.9627	.4785	.5769	.9338	.5480
90	6.43	9.95	11.96	16.43	18.43	.0261	.5702	.0670	.0170	.0104	1.5237	.9320	.9279	.9203	.4636	.5606	.9460	.5308
95	6.61	9.97	13.12	14.38	17.52	.0282	.5959	.1098	.0268	.0199	1.5232	.8908	.8842	.8750	.4560	.5460	.9623	.5175

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1255	1.4792	94.10	94.42	38.96

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	974.4	699.9	644.0	699.4	731.1	-28.0	48.63	-2.30	-15.65	41.66	668.9	936.2	180.3	-622.3	550.8	594.3
10	18.665	19.908	977.7	711.6	688.1	711.3	694.5	-20.0	45.27	-1.61	-10.05	41.57	699.0	950.8	121.8	-630.9	572.7	610.9
15	19.362	20.485	970.0	721.9	705.8	721.7	665.2	-19.2	43.30	-1.53	-5.76	41.91	709.9	969.8	71.0	-647.8	594.1	628.6
30	21.439	22.268	933.7	724.8	734.1	724.7	576.8	-16.9	38.15	-1.34	6.29	44.01	739.3	1007.8	-81.1	-700.2	657.8	683.3
50	24.186	24.672	871.1	679.6	711.9	679.4	502.1	-16.4	35.19	-1.39	18.64	48.70	752.2	1029.8	-240.1	-773.5	742.1	757.0
70	26.928	27.186	792.4	606.6	644.9	606.5	460.4	-15.2	35.53	-1.44	29.57	54.47	741.9	1043.9	-365.8	-849.4	826.3	834.2
85	28.974	29.120	745.4	556.4	589.0	556.3	456.8	-10.9	37.81	-1.11	36.29	58.40	730.7	1051.9	-432.3	-904.4	889.0	893.5
90	29.643	29.759	732.6	530.4	563.1	530.3	468.3	-8.6	39.76	-.93	38.09	60.08	715.5	1063.6	-441.2	-921.8	909.6	913.1
95	30.316	30.402	721.8	504.0	536.8	503.9	482.5	-8.3	41.95	-.94	39.83	61.83	699.1	1067.6	-447.7	-941.1	930.2	932.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO1	PO2/ TOTAL	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-8.92	-4.41	13.54	50.92	68.84	.0000	.4479	.1784	.0394	.0394	.9290	.0000	.0000	.7113	.8835	.6116	.6096	.8181
10	-7.07	-4.38	14.15	46.88	65.46	.0000	.4345	.1790	.0410	.0410	.9283	.0000	.0000	.7013	.8867	.6230	.6347	.8324
15	-6.42	-3.52	13.82	44.82	62.20	.0000	.4185	.1476	.0350	.0350	.9416	.0000	.0000	.7415	.8788	.6331	.6438	.8504
30	-5.84	-2.20	10.05	39.48	51.76	.0000	.3872	.0590	.0155	.0155	.9780	.0000	.0000	.8842	.8427	.6374	.6684	.8861
50	-5.31	-.70	6.83	36.58	44.16	.0005	.3936	.0211	.0062	.0061	.9930	.0000	.0000	.9557	.7797	.5953	.6742	.9021
70	-3.14	2.50	7.04	36.97	42.17	.0023	.4311	.0318	.0105	.0097	.9911	.0000	.0000	.9320	.7010	.5270	.6572	.9068
85	-1.53	4.86	10.00	38.92	44.14	.0076	.4760	.0723	.0257	.0230	.9819	.0000	.0000	.8497	.6532	.4793	.6403	.9148
90	-.46	6.11	10.47	40.69	45.15	.0139	.5125	.1110	.0404	.0353	.9732	.0000	.0000	.7873	.6394	.4547	.6240	.9117
95	.58	7.33	10.67	42.89	46.23	.0243	.5549	.1542	.0575	.0484	.9640	.0000	.0000	.7322	.6275	.4298	.6079	.9104

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7032.	172.79	1.1255	1.4450	88.45	88.65

Table XVII(c) Performance with Tip Radial Distortion, Nominal Stator, Solid Casing

Rotor

95% of Design Speed

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	594.2	1088.7	594.2	719.3	.0	817.1	.00	48.64	34.21	-24.41	718.6	790.3	-404.1	326.7	404.1	490.5
10	14.306	16.853	624.1	1058.9	624.1	728.9	.0	768.1	.00	46.49	34.98	-19.16	761.8	772.1	-436.8	253.6	436.8	514.5
15	15.361	17.635	643.8	1024.3	643.8	720.4	.0	728.0	.00	45.29	36.06	-14.70	796.6	745.7	-469.0	189.6	469.0	538.4
30	18.427	19.988	675.8	927.4	675.8	692.7	.0	616.5	.00	41.66	39.76	-.47	879.4	693.9	-562.6	6.3	562.6	610.2
50	22.273	23.137	677.8	817.1	677.8	626.7	.0	524.4	.00	39.93	45.07	16.25	960.5	654.2	-680.0	-181.9	680.0	706.4
70	25.934	26.288	583.4	716.3	583.4	533.3	.0	478.1	.00	41.89	53.61	31.32	984.0	624.9	-791.8	-324.4	791.8	802.6
85	28.573	28.641	506.7	663.5	506.7	460.4	.0	477.5	.00	46.07	59.84	40.79	1009.0	608.1	-872.3	-396.9	872.3	874.4
90	29.403	29.417	492.3	648.0	492.3	424.0	.0	489.4	.00	49.13	61.25	44.00	1023.9	589.3	-897.7	-408.7	897.7	898.1
95	30.215	30.208	484.8	633.4	484.8	387.8	.0	500.8	.00	52.25	62.27	47.38	1042.1	572.8	-922.5	-421.5	922.5	922.3

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-6.92	-.03	12.11	58.63	70.76	.0000	.1624	.0480	.0092	.0092	1.5082	.9700	.9683	1.6136	.5494	1.0064	.6648	.7306
10	-6.73	-.14	11.50	54.14	65.77	.0000	.2276	.0161	.0034	.0034	1.5109	.9874	.9867	.8707	.5794	.9745	.7082	.7105
15	-6.41	-.18	11.88	50.76	62.82	.0001	.2918	.0231	.0052	.0052	1.5022	.9815	.9804	.9210	.5985	.9375	.7421	.6825
30	-5.55	.09	12.79	40.22	52.95	.0012	.4032	.0338	.0089	.0086	1.4714	.9687	.9669	.9407	.6294	.6379	.8212	.6269
50	-3.56	1.41	11.47	28.82	38.92	.0031	.4835	.0745	.0212	.0203	1.4364	.9217	.9177	.9003	.6300	.7277	.8941	.5825
70	2.23	6.45	11.07	22.29	26.84	.0116	.5243	.0282	.0078	.0046	1.4830	.9693	.9676	.9635	.5386	.6289	.9061	.5486
85	6.39	10.06	10.79	19.06	19.79	.0248	.5619	.0359	.0094	.0029	1.5285	.9633	.9611	.9556	.4635	.5763	.9226	.5282
90	7.03	10.54	11.72	17.25	18.43	.0278	.5936	.0789	.0201	.0130	1.5322	.9232	.9184	.9085	.4495	.5601	.9353	.5094
95	7.18	10.53	13.17	14.89	17.52	.0299	.6235	.1256	.0306	.0233	1.5309	.8798	.8725	.8606	.4424	.5450	.9517	.4929

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1258	1.4829	94.54	94.83	38.43

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	965.2	679.9	629.3	679.3	731.8	-28.6	49.31	-2.41	-16.29	42.38	655.7	919.6	183.7	-619.9	588.0	591.3
10	18.665	19.908	967.6	691.3	674.4	691.0	693.7	-19.3	45.80	-1.60	-10.41	42.22	686.0	933.1	123.9	-627.0	569.8	607.8
15	19.362	20.485	959.6	702.0	692.9	701.7	663.7	-18.8	43.76	-1.54	-5.99	42.55	697.2	952.6	72.6	-644.2	591.1	625.4
30	21.439	22.268	923.5	713.6	722.3	713.4	575.3	-17.3	38.53	-1.39	6.25	44.34	727.3	997.5	-79.2	-697.1	654.5	679.8
50	24.186	24.072	860.7	666.2	699.7	666.0	501.2	-15.1	35.61	-1.30	18.74	49.07	739.8	1017.1	-237.2	-768.3	738.4	753.2
70	26.928	27.186	782.3	593.3	629.3	593.2	464.6	-13.2	36.45	-1.27	29.60	54.87	724.2	1031.1	-357.5	-843.1	822.1	830.0
85	28.974	29.120	738.8	544.6	571.6	544.5	467.9	-9.7	39.32	-1.02	36.10	58.79	707.4	1051.0	-416.6	-898.8	884.6	889.0
90	29.643	29.759	726.2	520.5	543.3	520.5	481.5	-8.2	41.56	-.90	37.96	60.41	689.0	1054.3	-423.5	-916.7	905.0	908.5
95	30.316	30.402	715.0	496.5	513.5	496.4	497.5	-7.8	44.09	-.90	39.82	62.06	668.6	1059.5	-428.1	-936.0	925.5	928.2

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-6.26	-3.74	13.43	51.72	68.84	.0000	.4637	.1785	.0394	.0394	.9301	.0000	.0000	.7211	.8741	.5931	.5970	.8021
10	-6.53	-3.85	14.17	47.40	65.46	.0000	.4491	.1799	.0412	.0412	.9291	.0000	.0000	.7097	.8764	.6042	.6221	.8155
15	-5.96	-3.06	13.81	45.30	62.20	.0000	.4326	.1495	.0355	.0355	.9418	.0000	.0000	.7469	.8684	.6145	.6315	.8339
30	-5.46	-1.82	10.00	39.92	51.76	.0000	.3923	.0482	.0126	.0126	.9823	.0000	.0000	.9064	.8325	.6270	.6569	.8764
50	-4.88	-.27	6.93	36.91	44.17	.0006	.4011	.0201	.0059	.0057	.9935	.0000	.0000	.9584	.7694	.5830	.6622	.8901
70	-2.20	3.44	7.81	37.72	42.16	.0033	.4416	.0368	.0121	.0110	.9899	.0000	.0000	.9225	.6910	.5147	.6405	.8944
85	-.03	6.35	10.08	40.34	44.14	.0122	.4921	.0875	.0311	.0267	.9785	.0000	.0000	.8261	.6484	.4682	.6188	.9035
90	1.33	7.89	10.50	42.46	45.15	.0222	.5282	.1230	.0448	.0367	.9709	.0000	.0000	.7716	.6326	.4453	.5998	.9018
95	2.72	9.47	10.70	45.00	46.23	.0386	.5687	.1607	.0599	.0455	.9633	.0000	.0000	.7240	.6201	.4225	.5799	.9016

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
6997.	170.45	1.1258	1.4489	88.95	89.16

Table XVIII(a) Performance with Tip Radial Distortion, Nominal Stator, Treated Casing

80% of Design Speed

Rotor

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	496.3	922.6	496.3	629.7	.0	674.3	.00	46.96	34.59	-22.34	602.8	680.4	-342.2	258.9	342.2	415.4
10	14.306	16.853	521.8	901.6	521.8	625.6	.0	649.2	.00	46.05	35.33	-18.81	639.7	661.3	-369.9	213.4	369.9	435.8
15	15.361	17.635	538.3	873.7	538.3	619.4	.0	616.0	.00	44.82	36.41	-14.43	669.0	640.5	-397.2	160.0	397.2	456.0
30	18.427	19.988	558.2	792.1	558.2	598.3	.0	518.9	.00	40.92	40.47	-.14	734.0	599.4	-476.5	2.1	476.5	516.8
50	22.273	23.137	557.7	696.2	557.7	542.1	.0	436.9	.00	38.87	45.90	16.62	802.1	567.0	-575.9	-161.3	575.9	599.3
70	25.934	26.288	478.2	617.1	478.2	469.6	.0	400.2	.00	40.45	54.50	30.78	824.0	547.0	-670.6	-279.5	670.6	679.7
85	28.573	28.641	403.8	574.4	403.8	403.2	.0	408.8	.00	45.41	61.34	39.47	842.2	522.5	-738.8	-331.8	738.8	740.6
90	29.403	29.417	383.9	557.9	388.9	376.7	.0	411.3	.00	47.54	62.90	42.85	854.1	514.1	-760.3	-349.3	760.3	760.7
95	30.215	30.206	381.0	541.4	381.0	354.0	.0	409.7	.00	49.17	64.00	46.37	869.2	513.1	-781.3	-371.4	781.3	781.1

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-6.56	.32	14.35	56.93	70.95	.0000	.1286	.0542	.0105	.0105	1.3378	.9657	.9643	1.3674	.4559	.8461	.5342	.6249
10	-6.40	.17	11.95	54.14	65.89	.0000	.2090	.0457	.0096	.0096	1.3424	.9679	.9666	.3532	.4807	.8239	.5905	.6043
15	-6.05	.17	12.14	50.85	62.85	.0000	.2724	.0487	.0110	.0110	1.3375	.9629	.9613	.7888	.4952	.7954	.6176	.5831
30	-4.84	.79	13.12	40.61	52.97	.0000	.3773	.0416	.0110	.0110	1.3200	.9614	.9598	.9140	.5134	.7146	.6775	.5408
50	-2.77	2.20	11.84	29.28	38.93	.0003	.4573	.0842	.0239	.0238	1.2916	.9082	.9048	.8707	.5121	.6217	.7370	.5062
70	2.96	7.20	10.53	23.72	26.84	.0045	.4955	.0426	.0119	.0107	1.3222	.9530	.9511	.9383	.4395	.5456	.7515	.4836
85	7.72	11.41	9.49	21.86	19.79	.0161	.5484	.0582	.0156	.0113	1.3572	.9406	.9380	.9214	.3691	.5034	.7634	.4579
90	8.64	12.17	10.58	20.05	18.44	.0193	.5684	.0842	.0218	.0169	1.3589	.9153	.9115	.8903	.3533	.4875	.7730	.4493
95	8.92	12.28	12.16	17.63	17.53	.0212	.5795	.1081	.0269	.0216	1.3564	.8905	.8856	.8624	.3453	.4719	.7870	.4473

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.0893	1.3238	93.26	93.53	33.148

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	820.7	597.3	556.9	596.0	602.8	-37.9	47.27	-3.66	-13.98	42.12	574.0	803.4	138.6	-538.7	464.2	500.8
10	18.665	19.906	827.7	624.0	584.2	623.8	586.2	-14.1	45.09	-1.30	-10.06	40.29	593.6	817.8	103.6	-528.9	482.6	514.8
15	19.362	20.485	822.8	639.7	600.9	639.5	562.0	-16.5	43.08	-1.48	-5.84	40.50	604.5	841.0	61.3	-546.2	500.7	529.7
30	21.439	22.268	792.4	636.2	626.8	636.1	484.7	-8.3	37.71	-.75	6.33	42.56	631.3	863.7	-69.7	-584.1	554.4	575.8
50	24.186	24.672	734.7	588.0	604.4	588.0	417.7	-3.9	34.64	-.39	18.97	47.50	639.9	870.8	-207.7	-641.9	625.4	638.0
70	26.928	27.186	675.1	533.1	552.5	532.9	387.9	-16.0	35.08	-1.71	29.18	53.45	633.0	895.0	-308.4	-718.9	696.3	703.0
85	28.974	29.120	642.6	494.2	502.0	494.2	401.0	-4.6	38.63	-.53	34.76	56.88	611.0	904.7	-348.2	-757.6	749.2	753.0
90	29.643	29.759	629.5	469.3	480.5	469.3	406.7	-3.0	40.25	-.38	36.84	58.72	600.4	904.1	-359.8	-772.5	766.5	769.5
95	30.316	30.402	615.9	445.5	461.6	445.4	407.8	-7.6	41.46	-.98	39.17	60.70	595.4	910.2	-376.1	-793.7	783.9	786.1

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-8.17	-5.66	12.17	50.92	68.83	.0000	.4391	.1822	.0402	.0402	.9442	.0000	.0000	.6728	.7423	.5264	.5201	.7081
10	-7.28	-4.60	14.47	46.39	65.47	.0000	.4071	.1517	.0347	.0347	.9529	.0000	.0000	.7069	.7483	.5510	.5367	.7223
15	-6.65	-3.76	13.87	44.56	62.21	.0000	.3848	.1070	.0254	.0254	.9671	.0000	.0000	.7761	.7435	.5660	.5465	.7441
30	-6.29	-2.65	10.65	38.45	51.77	.0000	.3570	.0335	.0088	.0088	.9903	.0000	.0000	.9230	.7135	.5638	.5696	.7654
50	-5.87	-1.26	7.83	35.03	44.16	.0000	.3672	.0120	.0036	.0036	.9970	.0000	.0000	.9708	.6581	.5193	.5737	.7690
70	-3.61	2.01	7.37	36.79	42.17	.0001	.4063	.0270	.0089	.0088	.9942	.0000	.0000	.9360	.6004	.4679	.5630	.7856
85	-1.09	5.34	10.61	39.16	44.45	.0045	.4559	.0795	.0284	.0268	.9844	.0000	.0000	.8225	.5666	.4305	.5388	.7880
90	-1.13	5.58	11.09	40.63	46.13	.0086	.4961	.1205	.0446	.0414	.9773	.0000	.0000	.7529	.5534	.4074	.5279	.7847
95	-1.37	5.57	10.71	42.44	47.59	.0126	.5339	.1557	.0594	.0546	.9719	.0000	.0000	.7026	.5403	.3856	.5225	.7878

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5926.	146.98	1.0893	1.3038	88.24	88.41

Table XVIII(b) Performance with Tip Radial Distortion, Nominal Stator, Treated Casing

Rotor

80% of Design Speed

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	450.2	876.6	450.2	563.7	.0	671.2	.00	49.97	37.20	-24.44	565.2	619.6	-341.7	256.4	341.7	414.8
10	14.306	16.853	473.1	850.9	473.1	571.9	.0	629.9	.00	47.76	37.98	-18.79	600.2	604.6	-369.4	194.8	369.4	435.1
15	15.361	17.635	488.2	824.9	488.2	571.8	.0	594.4	.00	46.09	39.08	-13.63	629.0	589.2	-396.6	139.1	396.6	455.3
30	18.427	19.988	506.0	752.8	506.0	557.5	.0	505.8	.00	42.20	43.21	1.11	694.7	558.5	-475.8	-10.3	475.8	516.1
50	22.273	23.137	504.7	673.4	504.7	505.6	.0	444.7	.00	41.35	48.70	16.86	765.4	529.0	-575.1	-152.7	575.1	597.4
70	25.934	26.288	422.6	612.4	422.6	420.4	.0	445.2	.00	46.66	57.73	29.09	792.2	481.2	-669.6	-233.6	669.6	678.7
85	28.573	28.641	348.8	574.1	348.8	337.0	.0	464.7	.00	54.07	64.69	39.22	816.2	435.1	-737.7	-274.8	737.7	739.5
90	29.403	29.417	336.0	559.0	336.0	308.8	.0	465.7	.00	56.48	66.12	43.61	830.3	426.9	-759.2	-293.8	759.2	759.5
95	30.215	30.208	329.5	544.1	329.5	284.8	.0	463.7	.00	58.45	67.10	48.00	846.9	425.7	-780.1	-316.3	780.1	780.0

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-3.95	2.93	12.28	61.64	70.98	.0000	.1778	.0688	.0132	.0132	1.3338	.9615	.9599	2.9810	.4121	.7986	.3179	.3645
10	-3.75	2.81	12.00	56.76	65.93	.0000	.2439	.0399	.0084	.0084	1.3331	.9742	.9732	.7383	.4343	.7729	.5524	.5492
15	-3.38	2.84	12.96	52.71	62.88	.0000	.2991	.0290	.0066	.0066	1.3302	.9791	.9782	.8991	.4475	.7471	.5792	.5337
30	-2.08	3.54	14.38	42.11	53.01	.0004	.3959	.0141	.0037	.0036	1.3202	.9870	.9865	.9712	.4637	.6766	.6403	.5020
50	.18	5.12	12.06	31.85	38.94	.0015	.4843	.0771	.0219	.0215	1.3028	.9238	.9209	.8850	.4596	.5993	.7020	.4708
70	6.63	10.82	8.85	28.64	26.87	.0110	.5772	.1037	.0296	.0264	1.3406	.9044	.9003	.8649	.3812	.5387	.7202	.4232
85	11.35	15.01	9.19	25.47	19.75	.0307	.6649	.1565	.0421	.0338	1.3733	.8660	.8598	.8146	.3136	.5001	.7388	.3790
90	11.90	15.41	11.32	22.51	18.42	.0346	.6844	.1800	.0461	.0372	1.3748	.8455	.8384	.7917	.3032	.4856	.7512	.3708
95	12.00	15.35	13.79	19.10	17.53	.0365	.6946	.2008	.0484	.0396	1.3734	.8253	.8172	.7713	.2974	.4715	.7657	.3688

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.0931	1.3331	91.83	92.15	30.28

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	778.0	536.3	493.4	535.7	601.4	-24.5	50.64	-2.62	-15.63	44.40	512.5	749.8	137.9	-524.6	463.5	500.1
10	18.665	19.908	775.7	547.8	526.4	547.6	569.5	-14.8	47.25	-1.55	-9.47	44.00	533.9	761.2	87.6	-528.8	481.9	514.0
15	19.362	20.485	770.1	553.7	546.3	563.6	542.5	-13.3	44.80	-1.35	-4.49	43.89	548.5	782.0	42.6	-542.2	499.9	528.9
30	21.439	22.268	743.2	572.4	574.0	572.3	472.0	-14.1	39.42	-1.42	8.07	45.83	580.3	821.4	-81.5	-589.1	553.5	574.9
50	24.186	24.672	696.4	530.1	553.7	530.0	422.4	-10.8	37.34	-1.16	20.06	50.71	589.9	837.2	-202.1	-647.8	624.5	637.0
70	26.928	27.186	652.7	479.6	493.3	479.5	427.2	-7.1	40.90	-.85	28.55	55.92	561.6	856.1	-268.1	-709.0	695.3	701.9
85	28.974	29.120	624.7	440.9	428.1	440.9	454.8	-6.3	46.74	-.82	34.43	59.82	519.1	877.1	-293.3	-758.1	748.1	751.9
90	29.643	29.759	612.9	423.7	405.7	423.7	459.3	-7.0	48.56	-.96	37.05	61.35	508.4	883.7	-306.1	-775.4	765.4	768.4
95	30.316	30.402	600.8	411.6	385.1	411.5	461.2	-10.2	50.14	-1.42	39.86	62.64	501.7	895.3	-321.6	-795.2	782.7	785.0

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-4.90	-2.38	13.21	53.26	68.84	.0000	.4824	.1700	.0376	.0376	.9526	.0000	.0000	.7239	.6992	.4702	.4624	.6574
10	-5.12	-2.45	14.22	48.80	65.47	.0000	.4610	.1572	.0360	.0360	.9563	.0000	.0000	.7316	.6975	.4811	.4803	.6685
15	-4.94	-2.06	13.99	46.14	62.19	.0000	.4344	.1175	.0279	.0279	.9678	.0000	.0000	.7841	.6925	.4960	.4931	.6881
30	-4.59	-.98	9.96	40.84	51.78	.0000	.3979	.0338	.0088	.0088	.9913	.0000	.0000	.9290	.6671	.5048	.5209	.7244
50	-5.29	1.28	7.05	38.51	44.16	.0000	.4204	.0249	.0073	.0073	.9943	.0000	.0000	.9527	.6227	.4657	.5269	.7354
70	1.92	7.49	8.23	41.75	42.11	.0073	.4831	.0658	.0216	.0192	.9867	.0000	.0000	.8925	.5786	.4176	.4985	.7455
85	7.16	13.50	10.30	47.56	44.19	.0518	.5557	.1270	.0451	.0267	.9766	.0000	.0000	.7831	.5485	.3805	.4561	.7369
90	8.15	14.69	10.44	49.51	45.15	.0739	.5850	.1524	.0554	.0285	.9730	.0000	.0000	.7423	.5365	.3646	.4450	.7603
95	8.80	15.54	10.19	51.56	46.25	.0970	.6070	.1642	.0612	.0250	.9721	.0000	.0000	.7189	.5239	.3534	.4367	.7687

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5917.	134.31	1.0931	1.3091	86.02	86.32

Table XVIII(c) Performance with Tip Radial Distortion, Nominal Stator, Treated Casing

90% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	503.8	986.8	503.8	623.6	.0	764.7	.00	50.80	37.39	-25.48	634.0	691.2	-385.0	297.3	385.0	467.3
10	14.306	16.853	529.1	956.9	529.1	636.1	.0	714.8	.00	48.33	38.18	-19.42	673.2	674.9	-416.2	224.6	416.2	490.3
15	15.361	17.635	545.8	926.2	545.8	632.3	.0	676.6	.00	46.92	39.30	-14.46	705.4	654.0	-446.9	163.6	446.9	513.0
30	18.427	19.988	567.2	841.4	567.2	612.2	.0	577.2	.00	43.31	43.36	.45	780.5	613.2	-536.0	-4.2	536.0	581.5
50	22.273	23.137	565.8	750.9	565.8	547.7	.0	513.6	.00	43.18	48.84	16.30	860.6	571.4	-647.9	-159.5	647.9	673.1
70	25.934	26.288	481.5	682.8	481.5	454.9	.0	509.0	.00	48.23	57.44	29.38	895.4	522.2	-754.4	-255.7	754.4	764.7
85	28.573	28.641	402.7	640.8	402.7	376.9	.0	518.0	.00	53.98	64.14	39.91	923.8	491.7	-831.2	-315.1	831.2	833.2
90	29.403	29.417	386.7	623.1	386.7	346.2	.0	517.8	.00	56.27	65.66	44.34	938.8	484.5	-855.3	-337.9	855.3	855.8
95	30.215	30.208	377.6	605.5	377.6	317.7	.0	515.4	.00	58.35	66.75	48.83	956.7	482.8	-879.0	-363.3	879.0	878.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-3.76	3.13	11.17	62.87	70.91	.0000	.1881	.0866	.0165	.0165	1.4366	.9532	.9507	5.5939	.4626	.9026	.5828	.8323
10	-3.54	3.03	11.33	57.60	65.88	.0000	.2515	.0480	.0100	.0100	1.4360	.9700	.9685	.7186	.4876	.8721	.6218	.6151
15	-3.17	3.06	12.13	53.76	62.86	.0003	.3123	.0441	.0100	.0099	1.4310	.9698	.9682	.8631	.5027	.8406	.6524	.5935
30	-1.93	3.69	13.72	42.91	53.00	.0023	.4174	.0374	.0099	.0092	1.4144	.9688	.9673	.9335	.5225	.7558	.7232	.5508
50	.31	5.25	11.51	32.54	38.95	.0054	.5162	.1068	.0304	.0289	1.3930	.9003	.8955	.8566	.5183	.6657	.7935	.5067
70	6.25	10.45	9.13	28.06	26.86	.0182	.6035	.1245	.0354	.0302	1.4429	.8895	.8837	.8507	.4376	.5968	.8175	.4564
85	10.73	14.40	9.91	24.23	19.78	.0393	.6628	.1460	.0389	.0284	1.4893	.8767	.8697	.8345	.3646	.5541	.8365	.4252
90	11.44	14.96	12.06	21.32	18.43	.0441	.6791	.1656	.0419	.0307	1.4924	.8599	.8518	.8159	.3502	.5371	.8513	.4176
95	11.65	15.00	14.62	17.92	17.53	.0470	.6895	.1866	.0443	.0331	1.4909	.8403	.8312	.7960	.3419	.5203	.8671	.4148

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1195	1.4340	90.60	91.07	33.43)

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	874.1	586.4	542.3	585.3	685.4	-35.6	51.64	-3.48	-16.76	45.67	566.6	837.5	163.2	-599.1	522.2	563.4
10	18.665	19.908	870.5	589.2	583.6	588.8	645.9	-21.1	47.90	-2.06	-10.01	45.55	592.8	840.9	102.9	-600.3	543.0	579.1
15	19.362	20.485	862.4	602.6	602.1	602.3	617.2	-18.0	45.70	-1.71	-5.14	45.55	605.0	860.0	54.0	-613.9	563.2	595.9
30	21.439	22.268	828.2	617.7	629.3	617.4	538.2	-18.5	40.53	-1.71	7.72	47.18	635.7	908.4	-85.4	-666.3	623.7	647.8
50	24.186	24.672	774.7	570.7	601.6	570.5	488.0	-14.1	39.05	-1.41	19.73	52.05	639.7	928.2	-215.6	-731.8	703.6	717.7
70	26.928	27.186	725.6	515.2	534.3	515.1	490.6	-9.9	42.57	-1.10	28.73	57.24	609.5	952.3	-292.7	-800.8	783.3	790.9
85	28.974	29.120	694.8	476.9	473.3	476.8	508.6	-8.7	47.07	-1.05	35.25	60.87	579.6	979.8	-334.3	-855.8	842.9	847.1
90	29.643	29.759	681.0	459.6	449.9	459.5	511.1	-10.0	48.66	-1.25	38.00	62.31	571.0	989.0	-351.2	-875.7	862.3	865.7
95	30.316	30.402	666.5	447.3	425.9	447.1	512.7	-13.5	50.29	-1.73	40.92	63.53	563.7	1003.1	-369.2	-897.9	881.9	884.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-5.95	-1.45	12.35	55.13	68.84	.0002	.5052	.1633	.0361	.0360	.9453	.0000	.0000	.7573	.7856	.5103	.5121	.7288
10	-4.46	-1.78	13.71	49.96	65.47	.0000	.4933	.1715	.0392	.0392	.9429	.0000	.0000	.7381	.7829	.5133	.5336	.7326
15	-4.03	-1.14	13.63	47.42	62.19	.0000	.4712	.1396	.0331	.0331	.9542	.0000	.0000	.7746	.7753	.5258	.5439	.7505
30	-3.48	.13	9.66	42.25	51.78	.0000	.4270	.0410	.0107	.0107	.9874	.0000	.0000	.9235	.7425	.5408	.5700	.7953
50	-1.56	3.02	6.80	40.47	44.16	.0017	.4525	.0334	.0099	.0094	.9909	.0000	.0000	.9402	.6898	.4970	.5693	.8083
70	3.73	9.32	7.97	43.67	42.13	.0197	.5158	.0838	.0276	.0211	.9799	.0000	.0000	.8613	.6388	.4440	.5367	.8207
85	7.58	13.93	10.07	48.12	44.18	.0635	.5774	.1442	.0512	.0287	.9685	.0000	.0000	.7833	.6058	.4072	.5050	.8366
90	8.28	14.83	10.15	49.91	45.15	.0829	.6030	.1643	.0598	.0296	.9655	.0000	.0000	.7353	.5917	.3913	.4960	.8419
95	8.95	15.68	9.88	52.02	46.24	.1059	.6227	.1706	.0636	.0241	.9656	.0000	.0000	.7227	.5768	.3799	.4871	.8518

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
6667.	148.25	1.1195	1.3992	84.38	84.83

Table XVIII(d) Performance with Tip Radial Distortion, Nominal Stator, Treated Casing

95% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	605.5	1076.9	605.5	704.3	.0	814.5	.00	49.14	33.79	-24.60	728.6	775.0	-405.2	322.6	405.2	491.9
10	14.306	16.853	637.1	1049.2	637.1	715.2	.0	767.5	.00	47.01	34.51	-19.35	773.1	758.6	-438.0	251.5	438.0	516.0
15	15.361	17.635	658.2	1016.5	658.2	712.4	.0	725.0	.00	45.49	35.54	-14.52	809.0	736.8	-470.3	185.0	470.3	540.0
30	18.427	19.988	688.2	919.4	688.2	689.9	.0	607.7	.00	41.36	39.33	.41	890.1	691.1	-564.2	-4.3	564.2	612.0
50	22.273	23.137	691.5	805.4	691.5	623.1	.0	510.3	.00	39.32	44.58	17.70	971.6	655.5	-682.0	-198.1	682.0	708.4
70	25.934	26.288	600.5	699.4	600.5	522.3	.0	465.1	.00	41.70	52.90	33.07	996.0	623.7	-794.1	-339.9	794.1	804.9
85	28.573	28.641	509.4	647.9	509.4	437.9	.0	477.2	.00	47.48	59.78	42.42	1012.6	593.3	-874.9	-399.8	874.9	877.0
90	29.403	29.417	493.1	627.4	493.1	401.2	.0	481.9	.00	50.26	61.28	46.27	1026.6	580.7	-900.3	-418.9	900.3	900.7
95	30.215	30.208	485.8	606.3	485.8	367.0	.0	482.6	.00	52.75	62.29	50.31	1045.0	574.9	-925.2	-442.4	925.2	924.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO1	PO2/ TOTAL	EFF-P TOTAL	EFF-AD STATIC	M-1	M-2	M'-1	M'-2	
5	-7.35	-.47	12.00	58.39	70.85	.0000	.1941	.0717	.0137	.0137	1.4984	.9551	.9525	3.3721	.5613	.9933	.6758	.7149
10	-7.21	-.63	11.33	53.86	65.80	.0000	.2562	.0395	.0083	.0083	1.5021	.9715	.9698	.8052	.5929	.9637	.7206	.6968
15	-6.93	-.70	12.05	50.06	62.82	.0001	.3127	.0356	.0081	.0080	1.4955	.9719	.9703	.8984	.6130	.9292	.7554	.6735
30	-5.97	-.34	13.67	38.92	52.96	.0011	.4107	.0301	.0079	.0076	1.4667	.9711	.9695	.9493	.6423	.8303	.8336	.6241
50	-3.98	.97	12.91	26.89	38.93	.0028	.4837	.0762	.0215	.0207	1.4219	.9167	.9125	.8999	.6426	.7172	.9071	.5837
70	1.69	5.89	12.81	19.83	26.85	.0103	.5271	.0510	.0139	.0111	1.4547	.9436	.9405	.9367	.5522	.6138	.9189	.5473
85	6.39	10.06	12.42	17.36	19.78	.0248	.5780	.0609	.0156	.0092	1.5132	.9386	.9350	.9281	.4648	.5618	.9265	.5144
90	7.06	10.58	13.99	15.01	18.43	.0282	.6005	.0923	.0226	.0156	1.5144	.9088	.9034	.8948	.4501	.5417	.9383	.5014
95	7.20	10.55	16.10	11.98	17.52	.0303	.6162	.1255	.0289	.0219	1.5076	.8756	.8683	.8607	.4433	.5216	.9544	.4945

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1237	1.4685	93.63	93.96	38.37

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	955.8	697.9	617.5	696.8	729.5	-37.9	49.75	-3.12	-16.25	42.16	643.3	940.0	179.9	-630.9	549.6	593.0
10	18.665	19.908	960.0	716.7	663.7	716.2	693.5	-25.1	46.26	-2.01	-10.43	41.55	675.0	957.0	122.0	-634.7	571.5	609.6
15	19.362	20.485	954.2	736.8	687.5	736.4	661.4	-23.3	43.88	-1.81	-5.71	41.46	691.5	982.6	68.6	-650.5	592.9	627.2
30	21.439	22.268	916.5	736.0	719.5	735.7	567.5	-23.3	38.25	-1.81	7.03	43.78	725.7	1019.1	-88.9	-705.1	656.4	681.8
50	24.186	24.672	848.6	686.4	694.1	686.1	488.2	-19.6	35.11	-1.63	19.99	48.48	739.7	1035.4	-252.4	-775.0	740.6	755.4
70	26.928	27.186	764.3	606.3	617.1	606.1	450.9	-13.1	36.17	-1.23	31.20	54.36	721.7	1040.5	-373.6	-845.5	824.5	832.4
85	28.974	29.120	722.6	551.6	550.7	551.6	467.6	.0	40.35	.01	37.32	58.26	692.5	1048.6	-419.5	-891.6	887.2	891.6
90	29.643	29.759	706.1	520.8	521.6	520.7	475.7	-5.7	42.38	-.66	39.64	60.40	677.5	1054.7	-431.9	-916.9	907.6	911.2
95	30.316	30.402	688.5	492.5	493.4	492.1	480.2	-21.2	44.23	-2.48	42.24	62.67	666.5	1071.8	-448.0	-952.1	928.3	930.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO1	PO2/ TOTAL	EFF-P TOTAL	EFF-AD STATIC	M-1	M-2	M'-1	M'-2	
5	-5.80	-3.28	12.72	52.87	68.84	.0000	.4414	.1961	.0433	.0433	.9244	.0000	.0000	.6669	.8644	.6098	.5849	.8215
10	-6.10	-3.41	13.76	48.27	65.46	.0000	.4197	.1871	.0428	.0428	.9273	.0000	.0000	.6655	.8685	.6280	.6117	.8385
15	-5.84	-2.94	13.55	45.70	62.21	.0000	.3935	.1430	.0339	.0339	.9449	.0000	.0000	.7230	.8627	.6475	.6262	.8635
30	-5.75	-2.11	9.58	40.06	51.77	.0000	.3627	.0609	.0159	.0159	.9780	.0000	.0000	.8666	.8257	.6487	.6553	.8982
50	-5.41	-.81	6.60	36.74	44.18	.0003	.3659	.0210	.0062	.0061	.9933	.0000	.0000	.9505	.7592	.6027	.6621	.9091
70	-2.50	3.12	7.84	37.40	42.13	.0023	.4056	.0293	.0096	.0089	.9923	.0000	.0000	.9313	.6758	.5273	.6382	.9050
85	.94	7.31	11.11	40.34	44.16	.0151	.4660	.0967	.0344	.0290	.9772	.0000	.0000	.7942	.6315	.4745	.6051	.9020
90	2.09	8.66	10.74	43.05	45.15	.0251	.5102	.1402	.0510	.0419	.9684	.0000	.0000	.7263	.6145	.4458	.5895	.9028
95	2.85	9.59	9.13	46.71	46.24	.0367	.5558	.1735	.0646	.0510	.9628	.0000	.0000	.6828	.5970	.4199	.5779	.9137

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7017.	172.40	1.1237	1.4337	87.71	87.98

Table XVIII(d) Performance with Tip Radial Distortion, Nominal Stator, Treated Casing

Rotor

95% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	566.6	1056.2	566.6	670.7	.0	815.8	.00	50.57	35.63	-25.69	697.1	744.5	-406.2	322.7	406.2	493.0
10	14.306	16.853	594.9	1023.5	594.9	684.0	.0	761.2	.00	48.05	36.42	-19.61	739.4	726.7	-439.0	244.0	439.0	517.2
15	15.361	17.635	613.8	989.6	613.8	680.6	.0	718.3	-.00	46.53	37.51	-14.55	774.0	704.1	-471.4	177.1	471.4	541.2
30	18.427	19.988	640.1	899.6	640.1	664.8	.0	606.0	.00	42.34	41.44	.68	854.2	665.9	-565.5	-7.4	565.5	613.4
50	22.273	23.137	643.6	802.3	643.6	604.0	.0	528.0	.00	41.17	46.70	16.83	939.2	632.2	-683.5	-182.0	683.5	710.0
70	25.934	26.288	554.8	720.8	554.8	512.6	.0	506.4	.00	44.67	55.11	30.39	970.6	594.5	-795.9	-300.3	795.9	806.7
85	28.573	28.641	468.7	680.7	468.7	422.3	.0	533.6	.00	51.66	61.87	39.31	994.5	545.9	-876.9	-345.4	876.9	878.9
90	29.403	29.417	453.3	661.1	453.3	387.1	.0	535.6	.00	54.18	63.32	43.52	1009.8	534.2	-902.3	-367.1	902.3	902.8
95	30.215	30.208	446.2	640.9	446.2	355.3	.0	533.5	.00	56.34	64.30	47.92	1029.0	530.3	-927.2	-393.6	927.2	927.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-5.50	1.39	10.81	61.32	70.74	.0000	.2017	.0922	.0175	.0175	1.4957	.9473	.9442	-3.2011	.5222	.9703	.6428	.8841
10	-5.30	1.30	11.03	56.03	65.75	.0000	.2634	.0561	.0117	.0117	1.4936	.9632	.9611	.7337	.5503	.9363	.6847	.6648
15	-4.96	1.28	12.03	52.06	62.82	.0003	.3217	.0507	.0115	.0114	1.4864	.9635	.9614	.8594	.5682	.9010	.7179	.6410
30	-3.87	1.77	13.94	40.76	52.95	.0023	.4150	.0249	.0066	.0060	1.4701	.9774	.9762	.9572	.5937	.8100	.7944	.5995
50	-1.91	3.05	12.04	29.87	38.93	.0050	.4964	.0716	.0203	.0189	1.4464	.9285	.9247	.9053	.5955	.7126	.8714	.5615
70	3.84	8.05	10.14	24.72	26.85	.0155	.5588	.0597	.0168	.0124	1.5015	.9420	.9386	.9272	.5089	.6307	.8915	.5202
85	8.47	12.13	9.31	22.56	19.78	.0336	.6376	.0990	.0266	.0175	1.5656	.9130	.9073	.8889	.4263	.5877	.9089	.4714
90	9.10	12.61	11.24	19.80	18.43	.0374	.6587	.1264	.0324	.0228	1.5673	.8895	.8823	.8619	.4124	.5686	.9202	.4594
95	9.20	12.55	13.71	16.38	17.52	.0396	.6714	.1539	.0372	.0276	1.5617	.8642	.8554	.8354	.4059	.5492	.9372	.4544

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1301	1.4935	93.02	93.40	36.94

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	935.6	629.8	583.9	628.7	731.0	-36.4	51.38	-3.31	-17.15	45.09	611.2	890.6	180.1	-630.7	550.9	594.4
10	18.665	19.908	932.1	636.6	628.9	636.1	687.9	-25.0	47.56	-2.25	-10.38	44.99	639.6	899.5	115.1	-635.9	572.8	610.9
15	19.362	20.485	923.0	652.8	649.8	652.5	655.3	-21.9	45.23	-1.93	-5.39	44.92	653.2	921.4	61.1	-650.6	594.2	626.7
30	21.439	22.268	889.6	670.1	686.9	669.7	565.2	-22.1	39.44	-1.89	7.67	46.48	693.7	972.8	-92.7	-705.5	657.9	683.4
50	24.186	24.672	836.0	628.1	667.3	627.9	503.5	-18.2	37.03	-1.66	19.69	50.99	709.5	997.9	-238.8	-775.3	742.2	757.1
70	26.928	27.186	774.5	562.9	601.0	562.8	488.2	-11.5	39.10	-1.17	29.38	56.36	689.8	1016.1	-338.1	-845.8	826.4	834.3
85	28.974	29.120	745.9	521.9	532.0	521.9	522.7	-1.3	44.50	-.15	34.58	59.75	646.2	1036.2	-366.5	-895.0	869.2	893.6
90	29.643	29.759	730.9	499.0	504.4	498.9	528.8	-4.9	46.37	-.57	37.08	61.47	632.3	1045.1	-380.9	-918.1	909.7	913.3
95	30.316	30.402	714.1	481.6	477.8	481.4	530.7	-15.4	48.01	-1.84	39.91	63.09	622.9	1063.6	-399.6	-948.4	930.3	933.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-4.22	-1.70	12.53	54.69	68.84	.0008	.5020	.1737	.0384	.0382	.9354	.0000	.0000	.7467	.8424	.5465	.5538	.7728
10	-4.78	-2.10	13.53	49.81	65.47	.0002	.4869	.1761	.0403	.0403	.9348	.0000	.0000	.7341	.8397	.5535	.5771	.7820
15	-4.50	-1.60	13.42	47.16	62.19	.0002	.4621	.1386	.0328	.0328	.9495	.0000	.0000	.7777	.8311	.5689	.5888	.8029
30	-4.52	-.89	9.50	41.33	51.74	.0000	.4165	.0416	.0109	.0109	.9857	.0000	.0000	.9227	.7989	.5865	.6239	.8514
50	-3.49	1.11	6.55	38.69	44.15	.0012	.4309	.0267	.0079	.0075	.9917	.0000	.0000	.9484	.7455	.5473	.6329	.8695
70	.36	5.97	7.91	40.27	42.15	.0091	.4846	.0638	.0210	.0180	.9829	.0000	.0000	.8867	.6827	.4855	.6081	.8763
85	5.04	11.40	10.97	44.65	44.17	.0443	.5493	.1310	.0465	.0303	.9677	.0000	.0000	.7794	.6496	.4447	.5828	.8829
90	6.02	12.58	10.83	46.94	45.15	.0613	.5826	.1581	.0575	.0352	.9626	.0000	.0000	.7420	.6341	.4235	.5484	.8869
95	6.66	13.40	9.78	49.84	46.24	.0785	.6102	.1677	.0625	.0332	.9621	.0000	.0000	.7283	.6169	.4075	.5377	.8999

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7033.	163.85	1.1301	1.4562	87.23	87.46

Table XVIII(d) Performance with Tip Radial Distortion, Nominal Stator, Treated Casing

95% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	533.9	1019.6	533.9	627.0	.0	803.8	.00	52.03	37.27	-26.34	670.9	700.2	-406.3	310.6	406.3	493.2
10	14.306	16.853	560.7	988.3	560.7	643.2	.0	750.2	.00	49.38	38.07	-19.87	712.3	684.5	-439.2	232.8	439.2	517.4
15	15.361	17.635	578.4	955.8	578.4	640.7	.0	709.0	.00	47.88	39.18	-14.61	746.4	663.2	-471.6	167.6	471.6	541.4
30	18.427	19.988	601.1	869.1	601.1	625.2	.0	603.6	.00	43.99	43.24	.96	825.6	626.2	-565.7	-10.0	565.7	613.6
50	22.273	23.137	599.2	782.3	599.2	559.9	.0	546.3	.00	44.31	48.74	16.40	909.6	584.3	-683.8	-164.1	683.8	710.3
70	25.934	26.288	510.9	714.4	510.9	451.2	.0	553.7	.00	50.84	57.30	29.34	946.4	517.6	-796.2	-253.3	796.2	807.1
85	28.573	28.641	424.7	667.0	424.7	356.0	.0	563.9	.00	57.75	64.16	41.55	974.8	475.9	-877.2	-315.4	877.2	879.5
90	29.403	29.417	407.9	647.5	407.9	323.0	.0	560.9	.00	60.09	65.67	46.67	990.7	471.5	-902.7	-342.2	902.7	903.1
95	30.215	30.208	398.8	628.7	398.8	294.5	.0	555.5	.00	62.07	66.74	51.62	1009.7	474.5	-927.6	-371.9	927.6	927.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-3.88	3.00	10.36	63.61	70.96	.0001	.2327	.0830	.0157	.0156	1.4923	.9550	.9524	.1698	.4920	.9317	.6189	.6399
10	-3.66	2.91	10.89	57.93	65.90	.0002	.2910	.0433	.0090	.0090	1.4914	.9727	.9712	.8407	.5185	.8996	.6603	.6231
15	-3.28	2.94	11.97	53.79	62.87	.0008	.3485	.0394	.0089	.0087	1.4850	.9728	.9712	.9044	.5346	.8662	.6929	.6010
30	-2.03	3.57	14.24	42.28	53.01	.0038	.4423	.0239	.0063	.0053	1.4695	.9795	.9783	.9610	.5559	.7792	.7688	.5615
50	.32	5.24	11.58	32.35	38.94	.0078	.5391	.0971	.0276	.0254	1.4540	.9112	.9064	.8781	.5492	.6916	.8433	.5165
70	6.45	10.62	9.11	27.96	26.89	.0222	.6453	.1394	.0396	.0333	1.5122	.8810	.8740	.8452	.4599	.6210	.8672	.4500
85	10.96	14.59	11.49	22.61	19.72	.0454	.7130	.1655	.0430	.0310	1.5647	.8657	.8570	.8259	.3813	.5728	.8874	.4087
90	11.49	14.99	14.37	19.00	18.42	.0504	.7244	.1805	.0438	.0314	1.5680	.8528	.8431	.8126	.3690	.5543	.9012	.4036
95	11.63	14.97	17.41	15.12	17.53	.0534	.7283	.1960	.0439	.0318	1.5665	.8378	.8272	.7985	.3613	.5365	.9172	.4050

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1342	1.4981	90.97	91.46	34.93

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	901.4	604.9	540.7	603.3	721.1	-43.9	53.13	-4.16	-17.46	46.63	567.0	878.4	169.9	-638.5	551.1	594.6
10	18.665	19.908	896.6	603.9	586.5	603.3	678.0	-25.2	49.14	-2.39	-10.16	46.53	596.1	876.9	105.0	-636.4	573.0	611.2
15	19.362	20.485	886.6	616.6	605.7	616.3	647.2	-18.2	46.89	-1.69	-5.01	46.39	608.6	893.7	52.8	-647.1	594.4	628.9
30	21.439	22.268	850.0	635.5	637.1	635.2	562.6	-19.4	41.44	-1.75	8.52	47.90	644.9	947.6	-95.6	-703.1	658.2	683.6
50	24.186	24.672	800.5	592.5	610.5	592.3	517.6	-15.2	40.30	-1.47	20.24	52.52	651.2	973.8	-224.9	-772.6	742.5	757.4
70	26.928	27.186	751.9	532.1	531.6	532.0	531.5	-10.3	45.01	-1.10	29.07	57.79	608.3	998.6	-295.2	-844.9	826.7	834.6
85	28.974	29.120	716.9	488.9	455.4	488.9	553.6	-4.6	50.57	-.53	36.43	61.44	566.2	1023.1	-335.9	-898.6	889.5	894.0
90	29.643	29.759	701.2	471.0	429.8	471.0	553.9	-6.1	52.20	-.75	39.66	62.88	558.6	1033.4	-356.2	-919.7	910.1	913.6
95	30.316	30.402	685.6	460.6	405.7	460.5	552.7	-10.8	53.73	-1.35	42.97	64.00	554.5	1050.5	-378.0	-944.2	930.7	933.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-2.50	.01	11.68	57.29	68.84	.0016	.5103	.1686	.0372	.0369	.9411	.0000	.0000	.7524	.8080	.5242	.5120	.7612
10	-3.22	-.54	13.37	51.53	65.46	.0004	.5007	.1855	.0425	.0424	.9356	.0000	.0000	.7210	.8043	.5238	.5354	.7607
15	-2.85	.03	13.64	48.58	62.18	.0004	.4776	.1554	.0368	.0367	.9470	.0000	.0000	.7527	.7952	.5358	.5456	.7765
30	-2.60	1.00	9.62	43.19	51.78	.0002	.4282	.0511	.0134	.0133	.9837	.0000	.0000	.9049	.7607	.5544	.5765	.8267
50	-.43	4.13	6.74	41.77	44.15	.0045	.4541	.0456	.0134	.0121	.9870	.0000	.0000	.9231	.7117	.5139	.5783	.8445
70	5.96	11.51	7.97	46.11	42.07	.0377	.5281	.1040	.0342	.0218	.9738	.0000	.0000	.8409	.6599	.4557	.5349	.8551
85	10.98	17.31	10.57	51.10	44.19	.1123	.5938	.1631	.0579	.0180	.9628	.0000	.0000	.7410	.6222	.4141	.4905	.8665
90	11.76	18.29	10.65	52.95	45.14	.1409	.6183	.1809	.0658	.0146	.9605	.0000	.0000	.7159	.6063	.3978	.4823	.8726
95	12.40	19.12	10.26	55.07	46.25	.1706	.6342	.1826	.0680	.0045	.9619	.0000	.0000	.7053	.5899	.3880	.4754	.8850

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7036.	154.90	1.1342	1.4539	84.18	84.67

APPENDIX H

BLADE ELEMENT AND OVERALL PERFORMANCE HUB-RADIAL DISTORTION

(FOR TABLE HEADINGS SEE APPENDIX D)

Table XIX	Nominal Stator, Solid Casing
Table XX	10° Closed Stator, Solid Casing
Table XXI	Nominal Stator, Treated Casing

Table XIX(a) Performance with Hub Radial Distortion, Nominal Stator, Solid Casing

80% of Design Speed

Rotor

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	341.8	772.7	341.8	422.8	.0	646.7	.00	56.82	44.93	-28.76	483.1	482.7	-341.3	232.4	341.3	414.3
10	14.306	16.853	354.3	750.1	354.3	431.9	.0	613.2	.00	54.83	46.13	-22.44	511.5	467.9	-368.9	178.6	368.9	434.6
15	15.361	17.635	364.6	730.1	364.6	438.8	.0	583.5	-.00	53.04	47.35	-16.32	538.4	457.9	-396.1	128.7	396.1	454.7
30	18.427	19.988	393.8	682.4	393.8	462.2	.0	501.8	.00	47.33	50.35	1.64	617.2	463.8	-475.2	-13.7	475.2	515.4
50	22.273	23.137	482.3	639.6	482.3	495.7	.0	403.8	.00	39.14	49.97	21.13	750.0	533.0	-574.3	-192.8	574.3	596.6
70	25.934	26.288	531.8	608.7	531.8	504.6	.0	340.5	.00	34.01	51.50	33.74	854.5	607.2	-668.8	-337.4	668.8	677.9
85	28.573	28.641	531.7	590.6	531.7	492.2	.0	326.5	.00	33.56	54.18	39.93	908.7	641.9	-736.8	-412.1	736.8	738.6
90	29.403	29.417	527.8	573.5	527.8	469.2	.0	329.8	.00	35.10	55.15	42.42	923.8	635.7	-758.2	-428.8	758.2	758.6
95	30.215	30.208	521.5	547.5	521.5	437.9	.0	328.6	.00	36.88	56.21	45.80	937.6	628.2	-779.1	-450.4	779.1	779.0

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	3.85	10.75	8.24	73.70	71.27	.0024	.3086	.0355	.0065	.0061	1.3287	.9842	.9835	.8636	.3103	.6953	.4400	.4344
10	4.33	10.85	8.53	68.57	66.26	.0038	.3728	-.0166	-.0034	-.0042	1.3352	1.0065	1.0068	1.0386	.3235	.6734	.4692	.4200
15	4.80	11.00	10.36	63.67	63.08	.0059	.4210	-.0530	-.0119	-.0132	1.3410	1.0258	1.0269	1.1024	.3323	.6540	.4947	.4101
30	4.39	9.95	14.94	48.71	53.16	.0099	.4723	-.1128	-.0299	-.0325	1.3491	1.0738	1.0771	1.1775	.3668	.6086	.5752	.4136
50	.84	5.73	16.27	28.84	38.96	.0026	.4521	-.0314	-.0087	-.0094	1.3077	1.0304	1.0315	1.0461	.4491	.5695	.6991	.4745
70	.15	4.31	13.49	17.76	26.89	.0013	.4203	.0267	.0072	.0069	1.2724	.9630	.9617	.9565	.4894	.5412	.7895	.5398
85	.75	4.40	9.81	14.24	19.66	.0020	.4185	.0635	.0169	.0164	1.2675	.9084	.9053	.8989	.4870	.5233	.8348	.5688
90	1.00	4.47	10.06	12.73	18.33	.0023	.4382	.1039	.0271	.0265	1.2589	.8514	.8465	.8424	.4831	.5067	.8476	.5616
95	1.12	4.46	11.59	10.40	17.53	.0029	.4562	.1423	.0358	.0350	1.2460	.7956	.7893	.7934	.4771	.4822	.8591	.5532

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.0793	1.2945	96.34	96.47	32.03

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	712.9	484.4	416.2	483.4	578.7	-31.3	54.28	-3.71	-15.57	47.67	432.3	717.9	115.8	-530.8	462.9	499.4
10	18.665	19.908	709.8	493.3	443.9	493.1	553.7	-12.4	51.28	-1.45	-9.31	46.84	450.3	720.8	72.3	-525.8	481.3	513.4
15	19.362	20.485	707.0	511.8	466.2	511.7	531.3	7.9	48.73	.87	-3.97	45.49	467.7	729.8	32.0	-520.4	499.3	528.2
30	21.439	22.268	698.2	547.6	518.5	547.5	467.2	7.8	42.01	.82	9.30	45.97	526.2	787.8	-85.7	-566.4	552.8	574.2
50	24.186	24.672	683.4	562.4	564.3	562.3	385.1	8.8	34.30	.90	22.85	48.13	613.2	842.5	-238.6	-627.4	623.7	636.2
70	26.928	27.186	664.3	562.8	575.3	562.6	332.1	-16.0	29.99	-1.63	32.19	51.88	680.0	911.4	-362.3	-717.0	694.4	701.0
85	28.974	29.120	650.1	558.4	564.2	558.4	323.0	-.1	29.79	-.01	36.94	53.37	705.8	935.9	-424.2	-751.0	747.1	750.9
90	29.643	29.759	635.0	533.4	544.0	533.2	327.5	13.8	31.05	1.48	38.77	54.72	697.7	923.2	-436.8	-753.6	764.4	767.4
95	30.316	30.402	612.9	489.0	518.1	488.9	327.4	12.5	32.29	1.47	41.25	57.64	689.1	913.3	-454.4	-771.4	781.8	784.0

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-1.10	1.42	12.15	57.99	68.86	.0000	.5034	.1651	.0365	.0365	.9605	.0000	.0000	.7307	.6357	.4237	.3870	.6280
10	-1.03	1.65	14.39	52.72	65.48	.0000	.4822	.1641	.0376	.0376	.9611	.0000	.0000	.7222	.6340	.4319	.4043	.6311
15	-1.00	1.91	16.27	47.86	62.25	.0000	.4468	.1346	.0320	.0320	.9683	.0000	.0000	.7532	.6312	.4488	.4198	.6400
30	-2.20	1.45	12.23	41.20	51.91	.0000	.3848	.0657	.0172	.0172	.9848	.0000	.0000	.8563	.6232	.4821	.4736	.6936
50	-6.34	-1.71	8.98	33.41	44.00	.0000	.3378	.0365	.0108	.0108	.9919	.0000	.0000	.9086	.6109	.4972	.5510	.7449
70	-8.66	-3.02	7.40	31.62	42.02	.0000	.3244	.0322	.0106	.0106	.9932	.0000	.0000	.9021	.5937	.4983	.6090	.8069
85	-9.57	-3.18	11.17	29.80	44.16	.0000	.3171	.0401	.0142	.0142	.9918	.0000	.0000	.8597	.5787	.4933	.6290	.8268
90	-9.24	-2.67	12.89	29.57	45.15	.0000	.3195	.0751	.0273	.0273	.9854	.0000	.0000	.7680	.5629	.4696	.6193	.8128
95	-9.13	-2.38	13.08	30.82	46.23	.0000	.3933	.1402	.0523	.0523	.9745	.0000	.0000	.6510	.5425	.4287	.6107	.8006

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5910.	142.06	1.0793	1.2748	90.67	90.77

Table XIX(a) Performance with Hub Radial Distortion, Nominal Stator, Solid Casing

80% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	300.5	746.8	300.5	361.5	.0	653.4	.00	61.04	48.49	-33.62	453.7	434.7	-339.9	240.9	339.9	412.5
10	14.306	16.853	312.0	724.1	312.0	384.8	.0	613.1	.00	57.86	49.64	-25.09	482.0	426.0	-367.4	180.3	367.4	432.8
15	15.361	17.635	321.4	705.6	321.4	395.0	.0	584.6	.00	55.95	50.81	-18.41	508.9	416.9	-394.5	131.7	394.5	452.9
30	18.427	19.988	346.8	658.3	346.8	408.0	.0	516.5	.00	51.67	53.76	-.45	586.7	409.3	-473.2	3.2	473.2	513.3
50	22.273	23.137	425.1	605.0	425.1	437.0	.0	418.0	.00	43.71	53.38	21.78	712.6	472.3	-572.0	-176.1	572.0	594.2
70	25.934	26.288	471.5	580.9	471.5	452.6	.0	364.1	.00	38.81	54.69	34.47	816.0	549.3	-666.0	-311.0	666.0	675.1
85	28.573	28.641	471.0	564.9	471.0	433.2	.0	362.6	.00	39.94	57.30	40.72	871.9	571.6	-733.7	-372.9	733.7	735.5
90	29.403	29.417	467.2	552.4	467.2	410.3	.0	369.9	.00	42.04	58.25	43.22	887.9	563.0	-755.1	-385.5	755.1	755.4
95	30.215	30.208	461.8	532.8	461.8	383.0	.0	370.3	.00	44.04	59.24	46.63	902.9	557.7	-775.9	-405.4	775.9	775.7

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	7.39	14.30	3.50	82.11	71.38	.0133	.3730	.0632	.0087	1.3276	.9758	.9748	.8323	.2720	.6697	.4120	.3899	
10	7.81	14.35	5.91	74.73	66.28	.0161	.4213	-.0236	-.0047	-.0079	1.3344	1.0087	1.0091	1.0459	.2841	.6481	.4410	.3813
15	8.24	14.44	8.27	69.22	63.09	.0199	.4686	-.0660	-.0147	-.0191	1.3415	1.0292	1.0305	1.1116	.2923	.6303	.4670	.3724
30	7.76	13.32	12.85	54.21	53.17	.0252	.5448	-.0947	-.0251	-.0317	1.3517	1.0551	1.0575	1.1302	.3226	.5850	.5462	.3637
50	4.22	9.10	16.92	31.60	38.96	.0082	.5146	-.0214	-.0059	-.0082	1.3139	1.0180	1.0187	1.0281	.3945	.5363	.6619	.4186
70	3.33	7.49	14.23	20.22	26.90	.0044	.4734	.0301	.0081	.0069	1.2920	.9639	.9626	.9550	.4320	.5139	.7511	.4860
85	3.88	7.51	10.58	16.58	19.64	.0056	.4891	.0913	.0240	.0225	1.2912	.8886	.8845	.8694	.4291	.4974	.7976	.5033
90	4.10	7.57	10.86	15.03	18.33	.0061	.5134	.1338	.0345	.0329	1.2869	.8388	.8329	.8168	.4254	.4849	.8110	.4942
95	4.14	7.49	12.42	12.61	17.53	.0070	.5301	.1675	.0415	.0397	1.2792	.7974	.7903	.7779	.4204	.4664	.8236	.4882

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.0836	1.3084	95.40	95.58	28.91

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	682.3	426.8	351.3	424.1	584.8	-47.8	58.99	-6.43	-19.42	52.12	373.1	690.7	123.8	-545.2	461.0	497.4
10	18.665	19.908	676.3	420.6	387.4	419.6	553.9	-29.4	55.03	-4.00	-11.03	52.19	395.4	684.3	74.6	-540.6	479.3	511.2
15	19.362	20.485	672.8	431.8	411.3	431.6	532.3	-8.8	52.30	-1.19	-4.92	51.10	413.2	687.3	35.1	-539.8	497.2	526.1
30	21.439	22.268	660.8	480.0	452.6	479.9	481.3	9.9	46.75	1.18	8.63	49.50	458.6	739.0	-69.3	-561.9	550.5	571.8
50	24.186	24.672	635.0	490.9	493.5	490.8	399.2	-8.2	38.96	-.96	24.11	52.58	541.7	808.0	-221.9	-641.8	621.1	633.6
70	26.928	27.186	623.8	505.9	512.6	505.6	355.4	-16.4	34.74	-1.86	33.24	54.71	613.0	875.3	-336.1	-714.5	691.5	698.1
85	28.974	29.120	613.0	503.7	497.1	503.6	358.7	11.4	35.81	1.30	37.79	55.63	629.0	892.1	-385.4	-736.4	744.0	747.8
90	29.643	29.759	602.4	484.9	477.6	484.7	367.2	12.3	37.55	1.45	39.52	57.19	619.2	894.6	-394.1	-751.9	761.2	764.2
95	30.316	30.402	585.8	447.1	455.0	447.0	369.0	-6.5	39.04	-.84	41.99	60.41	612.2	905.3	-409.5	-787.3	778.5	780.7

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	3.62	6.15	9.43	65.43	68.87	.0026	.5731	.1586	.0349	.0343	.9650	.0000	.0000	.7685	.6053	.3718	.3325	.6017
10	2.54	5.23	11.81	59.03	65.49	.0008	.5700	.1929	.0441	.0440	.9581	.0000	.0000	.7212	.6017	.3665	.3550	.5963
15	2.59	5.49	14.20	53.49	62.23	.0005	.5438	.1905	.0452	.0451	.9590	.0000	.0000	.7097	.5986	.3765	.3688	.5993
30	2.62	6.24	12.58	45.57	51.90	.0005	.4567	.1111	.0291	.0290	.9769	.0000	.0000	.7911	.5871	.4200	.4083	.6465
50	-1.57	3.03	7.21	39.92	44.09	.0000	.4144	.0720	.0212	.0212	.9860	.0000	.0000	.8404	.5645	.4309	.4815	.7093
70	-3.85	1.76	7.17	36.59	42.01	.0000	.3843	.0538	.0177	.0177	.9899	.0000	.0000	.8603	.5542	.4447	.5438	.7695
85	-3.55	2.82	12.45	34.52	44.14	.0003	.3789	.0662	.0235	.0234	.9880	.0000	.0000	.8184	.5422	.4413	.5562	.7816
90	-2.75	3.81	12.85	36.10	45.15	.0014	.4091	.0999	.0364	.0359	.9825	.0000	.0000	.7419	.5311	.4234	.5459	.7812
95	-2.34	4.41	10.78	39.88	46.23	.0031	.4755	.1661	.0619	.0608	.9725	.0000	.0000	.6357	.5151	.3889	.5384	.7875

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5885.	128.20	1.0836	1.2830	88.40	88.64

Table XIX(a) Performance with Hub Radial Distortion, Nominal Stator, Solid Casing

80% of Design Speed

Rotor

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	264.2	716.6	264.2	333.2	.0	634.6	.00	62.30	52.24	-33.43	431.7	399.6	-341.4	220.3	341.4	414.4
10	14.306	16.853	273.5	695.2	273.5	348.2	.0	601.6	.00	59.93	53.43	-25.59	459.3	386.6	-369.0	166.9	369.0	434.7
15	15.361	17.635	281.0	678.4	281.0	363.9	.0	572.4	.00	57.55	54.63	-17.89	485.8	382.9	-396.2	117.5	396.2	454.9
30	18.427	19.988	303.3	638.1	303.3	388.1	.0	506.6	.00	52.54	57.45	1.33	563.8	388.5	-475.3	-9.0	475.3	515.6
50	22.273	23.137	368.1	589.4	368.1	379.6	.0	450.9	.00	49.90	57.35	21.00	682.3	406.9	-574.5	-145.9	574.5	596.8
70	25.934	26.288	405.5	557.9	405.5	391.5	.0	397.4	.00	45.42	58.76	35.64	782.3	481.8	-668.9	-280.7	668.9	678.1
85	28.573	28.641	403.0	535.2	403.0	355.6	.0	400.1	.00	48.37	61.32	43.60	840.0	491.1	-737.0	-338.7	737.0	738.7
90	29.403	29.417	399.6	528.3	399.6	343.0	.0	401.8	.00	49.52	62.21	46.15	857.3	495.1	-758.4	-357.0	758.4	758.8
95	30.215	30.208	394.6	519.0	394.6	329.3	.0	401.1	.00	50.61	63.14	48.94	873.6	501.4	-779.3	-378.1	779.3	779.2

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	11.16	18.05	3.47	85.67	71.18	.0447	.4127	.1403	.0246	.0168	1.3097	.9512	.9493	.7041	.2390	.6413	.3926	.3575
10	11.63	18.13	5.33	79.02	66.23	.0487	.4730	.0627	.0126	.0030	1.3166	.9750	.9740	.8930	.2490	.6206	.4214	.3451
15	12.07	18.24	8.86	72.52	63.19	.0547	.5074	-.0053	-.0012	-.0132	1.3249	1.0014	1.0014	1.0068	.2555	.6045	.4478	.3412
30	11.24	16.74	14.64	56.13	53.22	.0571	.5589	-.0683	-.0181	-.0333	1.3395	1.0374	1.0390	1.0917	.2848	.5663	.5308	.3448
50	8.02	12.86	15.99	36.35	38.84	.0231	.6038	.0749	.0208	.0142	1.3136	.9407	.9384	.9064	.3434	.5200	.6382	.3590
70	7.40	11.53	15.44	23.13	26.95	.0140	.5511	.1091	.0289	.0251	1.2951	.8906	.8865	.8553	.3703	.4907	.7205	.4238
85	7.91	11.53	13.42	17.72	19.60	.0159	.5810	.1835	.0461	.0421	1.2924	.8085	.8014	.7660	.3651	.4681	.7661	.4275
90	8.05	11.52	13.80	16.06	18.34	.0165	.5884	.2026	.0497	.0456	1.2934	.7872	.7793	.7443	.3620	.4610	.7799	.4321
95	8.04	11.38	14.73	14.20	17.53	.0178	.5915	.2168	.0513	.0471	1.2941	.7704	.7618	.7285	.3576	.4521	.7933	.4368

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.0885	1.3070	89.78	90.17	25.48

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	648.3	388.1	312.3	376.6	568.0	-93.8	61.19	-13.98	-18.59	57.59	330.0	702.8	105.0	-593.3	463.0	499.6
10	18.665	19.908	641.0	376.0	339.5	370.6	543.5	-62.2	58.01	-9.49	-10.46	57.22	345.8	684.6	62.1	-575.7	481.4	513.5
15	19.362	20.485	637.1	384.4	365.6	382.4	521.6	-35.2	54.97	-5.31	-3.56	55.84	366.8	681.2	22.2	-563.6	499.4	528.4
30	21.439	22.268	629.6	427.5	416.5	427.4	472.1	7.5	48.57	.99	10.94	52.99	424.7	710.0	-80.9	-566.9	553.0	574.4
50	24.186	24.672	608.6	448.2	429.5	448.2	431.1	-.5	45.11	-.07	24.13	54.86	471.0	778.8	-192.7	-636.9	623.8	636.4
70	26.928	27.186	590.9	455.2	446.0	455.0	387.5	-10.6	40.98	-1.33	34.54	57.41	541.5	844.8	-307.0	-711.8	694.6	701.2
85	28.974	29.120	574.2	430.3	416.7	438.3	395.0	5.1	43.46	.67	40.21	59.56	545.7	865.2	-352.3	-746.0	747.3	751.1
90	29.643	29.759	569.1	426.5	406.3	426.2	398.5	13.8	44.44	1.85	42.02	60.51	546.9	866.0	-366.1	-753.8	764.6	767.6
95	30.316	30.402	561.9	411.7	395.0	411.7	399.6	8.0	45.33	1.11	44.06	62.06	549.7	878.6	-382.3	-776.2	781.9	784.2

% SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	5.81	8.34	1.88	75.16	68.86	.0056	.6211	.1728	.0371	.0359	.9652	.0000	.0000	.7570	.5738	.3376	.2934	.6113
10	5.67	8.35	6.29	67.50	65.44	.0036	.6243	.2196	.0496	.0488	.9567	.0000	.0000	.6958	.5686	.3269	.3078	.5952
15	5.27	8.14	10.04	60.28	62.19	.0023	.5987	.2274	.0537	.0531	.9557	.0000	.0000	.6740	.5656	.3344	.3241	.5926
30	4.49	8.03	12.33	47.58	51.79	.0015	.5100	.1733	.0453	.0449	.9669	.0000	.0000	.7109	.5595	.3729	.3726	.6193
50	4.65	9.17	8.12	45.17	44.08	.0067	.4704	.1063	.0313	.0293	.9810	.0000	.0000	.7948	.5396	.3910	.4121	.6795
70	2.49	8.05	7.69	42.31	41.99	.0040	.4502	.0886	.0291	.0278	.9850	.0000	.0000	.8050	.5223	.3972	.4746	.7373
85	4.08	10.44	11.81	42.79	44.09	.0189	.4773	.1330	.0472	.0405	.9788	.0000	.0000	.7171	.5045	.3806	.4788	.7514
90	4.14	10.69	13.25	42.59	45.15	.0254	.4960	.1680	.0611	.0518	.9738	.0000	.0000	.6520	.4987	.3695	.4789	.7504
95	3.98	10.72	12.72	44.22	46.23	.0321	.5267	.2032	.0757	.0638	.9691	.0000	.0000	.5952	.4915	.3560	.4805	.7597

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5911.	113.02	1.0885	1.2748	81.24	81.79

Table XIX(b) Performance with Hub Radial Distortion, Nominal Stator, Solid Casing

Rotor

90% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	404.6	879.6	404.6	481.6	.0	736.0	.00	56.80	43.64	-29.00	559.3	551.2	-386.1	267.4	386.1	468.6
10	14.306	16.853	420.1	854.2	420.1	490.4	.0	699.2	.00	54.95	44.79	-22.91	592.1	533.2	-417.3	207.6	417.3	491.6
15	15.361	17.635	432.6	831.9	432.6	497.3	.0	666.7	-.00	53.27	45.98	-17.00	622.9	520.9	-448.1	152.3	448.1	514.4
30	18.427	19.988	467.9	778.7	467.9	527.5	.0	572.4	.00	47.31	48.96	1.09	712.6	529.3	-537.5	-10.7	537.5	583.1
50	22.273	23.137	569.5	729.4	569.5	561.1	.0	465.6	.00	39.67	48.76	20.34	864.0	600.1	-649.7	-209.3	649.7	674.9
70	25.934	26.288	624.1	689.6	624.1	568.0	.0	390.9	.00	34.53	50.47	33.47	980.7	681.5	-756.5	-376.0	756.5	766.8
85	28.573	28.641	623.5	664.3	623.5	551.2	.0	370.8	.00	33.93	53.20	40.12	1040.9	721.0	-833.5	-464.6	833.5	835.5
90	29.403	29.417	619.2	644.1	619.2	525.9	.0	371.9	.00	35.27	54.17	42.75	1057.9	716.2	-857.7	-486.2	857.7	858.1
95	30.215	30.208	612.5	617.0	612.5	492.9	.0	371.3	.00	36.99	55.20	45.97	1073.3	709.2	-881.4	-509.9	881.4	881.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	2.53	9.44	8.11	72.63	71.36	.0032	.3170	.0505	.0093	.0087	1.4320	.9771	.9759	.8249	.3683	.7931	.5104	.4970
10	2.97	9.52	8.09	67.71	66.28	.0048	.3827	.0019	.0004	-.0006	1.4411	.9977	.9976	.9941	.3844	.7675	.5435	.4791
15	3.41	9.64	9.65	62.98	63.03	.0072	.4317	-.0349	-.0078	-.0094	1.4500	1.0167	1.0176	1.0623	.3955	.7454	.5727	.4667
30	3.12	8.71	14.39	47.86	53.14	.0120	.4783	-.1101	-.0291	-.0323	1.4643	1.0718	1.0758	1.1626	.4356	.6940	.6640	.4717
50	-.30	4.60	15.49	28.42	38.96	.0053	.4683	-.0154	-.0043	-.0058	1.4056	1.0134	1.0140	1.0195	.5327	.6482	.8091	.5333
70	-.87	3.30	13.22	17.00	26.89	.0040	.4360	.0416	.0113	.0102	1.3546	.9443	.9419	.9393	.5792	.6115	.9134	.6043
85	-.23	3.41	10.01	13.07	19.67	.0055	.4313	.0762	.0202	.0188	1.3450	.8930	.8884	.8904	.5763	.5866	.9646	.6366
90	.01	3.49	10.39	11.42	18.33	.0061	.4474	.1134	.0295	.0279	1.3328	.8413	.8347	.8431	.5719	.5668	.9790	.6302
95	.11	3.46	11.76	9.23	17.53	.0070	.4639	.1505	.0377	.0360	1.3176	.7890	.7806	.7994	.5653	.5409	.9920	.6216

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/AI LBM/SEC SQFT
1.1024	1.3859	95.12	95.34	36.34

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	809.9	538.4	471.1	536.8	658.6	-40.9	54.42	-4.36	-16.01	48.46	490.5	809.5	135.0	-605.9	523.6	565.0
10	18.665	19.908	806.9	543.7	502.2	543.4	631.3	-15.5	51.49	-1.64	-9.86	47.66	510.3	806.7	86.8	-596.3	544.5	580.7
15	19.362	20.485	804.5	563.6	527.6	563.6	607.1	-2.0	49.01	-.21	-4.63	46.78	529.8	822.8	42.3	-599.5	564.8	597.6
30	21.439	22.268	796.9	609.8	592.1	609.7	532.8	4.8	41.98	.45	8.80	46.60	600.1	887.4	-92.6	-644.8	625.4	649.6
50	24.186	24.672	781.6	632.7	642.9	632.7	444.2	-2.8	34.64	-.26	22.06	48.79	694.5	960.4	-261.3	-722.5	705.5	719.7
70	26.928	27.186	756.6	630.3	653.6	629.9	381.1	-21.9	30.25	-1.99	31.73	52.30	768.7	1030.0	-404.4	-815.0	785.5	793.0
85	28.974	29.120	736.4	623.0	638.6	623.0	366.8	-8.1	29.87	-.74	36.84	54.00	797.9	1059.9	-478.4	-857.5	845.2	849.4
90	29.643	29.759	718.8	592.7	616.6	592.7	369.4	2.7	30.92	.26	38.77	55.59	790.9	1049.0	-495.3	-865.4	864.7	868.1
95	30.316	30.402	696.1	546.1	589.7	546.1	369.9	-2.9	32.10	-.30	41.10	58.46	782.5	1044.0	-514.4	-889.7	884.3	886.8

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-.95	1.57	11.50	58.78	68.86	.0009	.5200	.1571	.0347	.0345	.9538	.0000	.0000	.7611	.7218	.4674	.4389	.7028
10	-.83	1.86	14.18	53.13	65.49	.0005	.5044	.1683	.0386	.0385	.9508	.0000	.0000	.7385	.7203	.4723	.4581	.7009
15	-.72	2.20	15.19	49.22	62.25	.0005	.4742	.1456	.0346	.0345	.9576	.0000	.0000	.7579	.7179	.4905	.4752	.7161
30	-2.26	1.39	11.86	41.53	51.92	.0001	.4051	.0753	.0197	.0197	.9784	.0000	.0000	.8516	.7113	.5337	.5399	.7768
50	-5.99	-1.36	7.84	34.89	44.02	.0000	.3575	.0355	.0105	.0105	.9901	.0000	.0000	.9185	.6986	.5567	.6237	.8450
70	-8.42	-2.77	7.04	32.24	42.02	.0000	.3415	.0312	.0103	.0103	.9918	.0000	.0000	.9162	.6756	.5556	.6882	.9079
85	-9.51	-3.12	10.43	30.62	44.16	.0000	.3344	.0352	.0125	.0125	.9912	.0000	.0000	.8889	.6544	.5478	.7101	.9320
90	-9.37	-2.80	11.66	30.67	45.15	.0000	.3607	.0736	.0268	.0268	.9824	.0000	.0000	.7953	.6358	.5189	.7007	.9184
95	-9.33	-2.57	11.31	32.41	46.23	.0000	.4149	.1349	.0503	.0503	.9696	.0000	.0000	.6907	.6145	.4757	.6917	.9093

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
6685.	161.17	1.1024	1.3597	89.75	89.78

Table XIX(b) Performance with Hub Radial Distortion, Nominal Stator, Solid Casing

Rotor

90% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	345.4	832.7	345.4	399.0	.0	730.8	.00	61.36	48.04	-33.43	516.9	479.0	-384.5	264.1	364.5	466.7
10	14.306	16.853	359.2	807.0	359.2	426.9	.0	684.3	.00	58.02	49.14	-24.51	549.9	470.7	-415.6	194.7	415.6	489.6
15	15.361	17.635	370.6	787.1	370.6	442.3	.0	650.9	.00	55.79	50.27	-17.37	580.1	464.2	-446.3	138.6	446.3	512.3
30	18.427	19.988	400.5	737.4	400.5	457.2	.0	578.4	.00	51.66	53.20	.27	668.5	458.7	-535.3	-2.2	535.3	580.7
50	22.273	23.137	488.4	679.1	488.4	480.3	.0	479.7	.00	44.94	52.95	21.68	810.7	518.8	-647.1	-192.5	647.1	672.2
70	25.934	26.288	539.9	651.8	539.9	495.4	.0	423.6	.00	40.53	54.36	34.44	927.0	601.1	-753.4	-340.1	753.4	763.7
85	28.573	28.641	540.1	637.0	540.1	477.1	.0	422.1	.00	41.50	56.95	40.67	990.3	629.1	-830.1	-410.0	830.1	832.1
90	29.403	29.417	536.3	628.5	536.3	461.1	.0	427.0	.00	42.81	57.88	42.84	1008.6	628.8	-854.2	-427.6	854.2	854.6
95	30.215	30.208	530.0	610.9	530.0	436.3	.0	427.7	.00	44.43	58.88	45.88	1025.4	626.7	-877.6	-449.9	877.8	877.6

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	6.92	13.83	3.80	81.47	71.49	.0170	.3983	.0879	.0154	.0124	1.4209	.9661	.9644	.8041	.3131	.7464	.4697	.4293
10	7.30	13.85	6.52	73.65	66.31	.0200	.4418	-.0010	-.0002	-.0042	1.4291	.9992	.9991	1.0001	.3275	.7216	.5025	.4209
15	7.69	13.91	9.29	67.65	63.06	.0242	.4808	-.0536	-.0120	-.0173	1.4395	1.0237	1.0249	1.0832	.3375	.7022	.5323	.4142
30	7.27	12.84	13.58	52.93	53.16	.0305	.5521	-.0857	-.0227	-.0308	1.4562	1.0495	1.0523	1.1110	.3726	.6538	.6226	.4067
50	3.85	8.74	16.83	31.27	38.97	.0139	.5390	.0108	.0030	-.0009	1.4057	.9890	.9885	.9849	.4543	.5994	.7549	.4579
70	3.01	7.18	14.19	19.93	26.89	.0098	.5016	.0649	.0175	.0148	1.3780	.9272	.9238	.9134	.4971	.5736	.8567	.5290
85	3.51	7.16	10.58	16.28	19.69	.0120	.5130	.1180	.0311	.0279	1.3815	.8642	.8579	.8465	.4951	.5574	.9101	.5505
90	3.71	7.19	10.48	15.04	18.33	.0127	.5264	.1457	.0378	.0345	1.3815	.8332	.8254	.8146	.4914	.5483	.9257	.5486
95	3.78	7.13	11.68	12.99	17.53	.0141	.5391	.1734	.0435	.0400	1.3759	.8013	.7921	.7846	.4854	.5313	.9401	.5450

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/AI LBM/SEC SQFT
1.1083	1.4013	93.32	93.63	32.40

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	757.5	458.7	381.8	453.5	654.1	-69.2	59.72	-8.68	-19.16	54.34	405.0	777.8	132.6	-631.9	521.5	562.7
10	18.665	19.908	750.1	447.8	423.5	444.1	618.4	-57.4	55.59	-7.36	-10.37	55.06	431.5	775.5	76.1	-635.8	542.3	578.4
15	19.362	20.485	746.8	460.2	454.1	458.2	592.7	-40.7	52.54	-5.11	-3.87	54.23	455.6	783.8	30.2	-635.9	562.5	595.1
30	21.439	22.268	737.4	517.9	502.9	517.9	539.1	-4.0	46.98	-.46	9.37	51.50	510.6	831.8	-83.7	-651.0	622.8	646.9
50	24.186	24.672	712.0	537.0	544.4	537.0	458.5	-5.3	40.09	-.56	24.06	53.35	597.3	899.9	-244.1	-722.0	702.6	716.8
70	26.928	27.186	701.9	554.7	567.1	554.6	413.6	-8.4	36.10	-.87	33.01	55.20	676.6	972.0	-368.7	-796.2	782.3	789.8
85	28.974	29.120	694.5	558.7	555.1	558.7	417.4	-3.2	36.94	-.33	37.39	56.66	698.7	1016.5	-424.3	-849.2	841.7	846.0
90	29.643	29.759	688.3	547.3	542.3	547.3	423.9	-.4	38.01	-.04	38.88	57.68	696.7	1023.6	-437.3	-864.9	861.2	864.6
95	30.316	30.402	674.3	512.0	522.6	511.9	426.1	-5.7	39.19	-.64	41.03	60.06	692.7	1025.8	-454.7	-888.9	880.7	883.2

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	4.34	6.88	7.18	68.40	68.87	.0078	.5993	.1628	.0356	.0339	.9574	.0000	.0000	.7768	.6699	.3962	.3599	.6717
10	3.07	5.76	8.43	62.95	65.48	.0034	.6039	.2044	.0465	.0457	.9474	.0000	.0000	.7239	.6655	.3869	.3863	.6699
15	2.81	5.70	10.26	57.66	62.22	.0024	.5801	.2063	.0488	.0482	.9473	.0000	.0000	.7076	.6630	.3979	.4050	.6778
30	2.87	6.46	10.92	47.44	51.90	.0025	.4868	.1305	.0342	.0335	.9674	.0000	.0000	.7754	.6542	.4496	.4517	.7221
50	-.34	4.23	7.66	40.66	44.16	.0013	.4358	.0758	.0224	.0220	.9822	.0000	.0000	.8439	.6313	.4678	.5268	.7839
70	-2.46	3.13	8.15	36.97	42.01	.0007	.4066	.0566	.0186	.0184	.9870	.0000	.0000	.8710	.6212	.4838	.5967	.8478
85	-2.45	3.91	10.78	37.27	44.13	.0032	.4101	.0636	.0226	.0214	.9858	.0000	.0000	.8471	.6115	.4855	.6148	.8633
90	-2.30	4.26	11.36	38.05	45.15	.0054	.4288	.0874	.0318	.0299	.9809	.0000	.0000	.7926	.6043	.4741	.6115	.8667
95	-2.18	4.56	10.97	39.83	46.24	.0079	.4791	.1465	.0546	.0517	.9692	.0000	.0000	.6916	.5900	.4416	.6061	.8848

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
6658.	143.71	1.1083	1.3678	86.52	86.95

Table XIX(b) Performance with Hub Radial Distortion, Nominal Stator, Solid Casing

Rotor

90% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	301.2	786.3	301.2	373.1	.0	692.1	.00	61.67	51.89	-31.11	488.4	436.4	-384.4	225.6	384.4	466.6
10	14.306	16.853	313.2	765.8	313.2	382.6	.0	663.3	.00	60.01	52.97	-24.39	520.3	420.8	-415.5	173.8	415.5	489.4
15	15.361	17.635	323.2	750.8	323.2	397.0	.0	637.1	-.00	58.07	54.06	-17.47	550.9	416.9	-446.1	125.0	446.1	512.1
30	18.427	19.988	348.6	716.1	348.6	425.5	.0	575.9	.00	53.53	56.92	.63	638.7	426.2	-535.1	-4.6	535.1	580.5
50	22.273	23.137	424.0	673.7	424.0	426.4	.0	521.5	.00	50.72	56.75	19.37	773.4	452.8	-646.8	-150.4	646.8	671.9
70	25.934	26.288	465.8	639.1	465.8	441.1	.0	462.5	.00	46.36	58.26	34.30	885.6	534.0	-753.2	-300.9	753.2	763.4
85	28.573	28.641	463.2	612.6	463.2	401.5	.0	462.7	.00	49.05	60.83	42.59	950.3	545.4	-829.8	-369.1	829.8	831.8
90	29.403	29.417	459.3	601.0	459.3	383.0	.0	463.1	.00	50.41	61.72	45.61	969.6	547.5	-853.9	-391.2	853.9	854.3
95	30.215	30.208	453.9	583.2	453.9	358.6	.0	459.9	.00	52.06	62.65	49.33	987.9	550.3	-877.5	-417.3	877.5	877.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	10.78	17.68	6.00	83.00	71.38	.0479	.4324	.1646	.0296	.0210	1.3838	.9410	.9382	.6980	.2729	.7026	.4443	.3900
10	11.11	17.63	6.62	77.36	66.32	.0511	.4974	.1005	.0203	.0101	1.3949	.9595	.9575	.8474	.2858	.6823	.4773	.3750
15	11.47	17.66	9.25	71.53	63.15	.0561	.5333	.0367	.0082	-.0042	1.4087	.9831	.9823	.9479	.2941	.6676	.5070	.3707
30	10.75	16.27	13.95	56.29	53.21	.0606	.5815	-.0389	-.0103	-.0264	1.4390	1.0204	1.0215	1.0482	.3271	.6334	.5998	.3770
50	7.50	12.35	14.43	37.38	38.91	.0291	.6187	.0864	.0242	.0159	1.4168	.9341	.9307	.8976	.3955	.5917	.7232	.3977
70	6.90	11.03	14.09	23.96	26.93	.0209	.5686	.1203	.0324	.0267	1.3948	.8854	.8799	.8504	.4270	.5592	.8184	.4672
85	7.41	11.04	12.41	18.23	19.60	.0236	.5954	.1928	.0493	.0432	1.3906	.8085	.7994	.7687	.4214	.5321	.8707	.4737
90	7.56	11.03	13.27	16.12	18.35	.0245	.6043	.2151	.0532	.0471	1.3887	.7844	.7742	.7453	.4177	.5206	.8862	.4743
95	7.54	10.88	15.12	13.32	17.53	.0262	.6108	.2354	.0553	.0491	1.3833	.7609	.7498	.7250	.4130	.5038	.9012	.4754

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC(1/A) LBM/SEC SQFT
1.1143	1.4026	88.77	89.30	28.76

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	706.8	384.0	340.0	371.8	619.4	-96.2	61.23	-14.51	-16.17	60.56	354.8	756.3	98.1	-658.7	521.3	562.5
10	18.665	19.908	701.7	382.6	366.2	372.8	598.4	-85.5	58.53	-12.92	-8.84	60.68	371.2	761.2	56.3	-663.7	542.1	578.2
15	19.362	20.485	700.5	393.5	392.8	386.9	579.8	-70.5	55.89	-10.39	-2.66	59.84	393.7	769.8	17.5	-665.4	562.3	594.9
30	21.439	22.268	702.8	454.4	455.3	454.1	535.3	-16.7	49.62	-2.13	10.79	55.62	464.0	803.9	-87.3	-663.4	622.6	646.7
50	24.186	24.672	693.9	506.8	482.7	506.6	498.3	-10.9	45.91	-1.23	22.84	55.14	524.6	886.5	-204.1	-727.4	702.4	716.5
70	26.928	27.186	677.0	520.6	504.7	520.3	451.1	-16.3	41.79	-1.79	33.24	57.14	603.6	959.2	-330.9	-805.8	782.0	789.5
85	28.974	29.120	658.0	505.3	474.0	505.2	456.4	-10.3	43.92	-1.17	39.09	59.45	610.7	994.0	-385.1	-856.0	841.5	845.7
90	29.643	29.759	649.0	491.2	458.9	491.1	459.0	-7.3	45.01	-.85	41.21	60.60	610.0	1000.4	-401.9	-871.6	860.9	864.2
95	30.316	30.402	634.1	469.1	438.3	469.0	458.3	-12.1	46.28	-1.48	43.93	62.34	608.5	1010.5	-422.2	-895.0	880.4	882.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	5.75	8.27	1.34	75.73	68.85	.0092	.6745	.2080	.0445	.0426	.9518	.0000	.0000	.7361	.6247	.3310	.3154	.6519
10	6.13	8.80	2.79	71.45	65.42	.0079	.6725	.2430	.0542	.0525	.9444	.0000	.0000	.6895	.6200	.3296	.3279	.6559
15	6.21	9.05	4.94	66.28	62.18	.0072	.6532	.2591	.0604	.0587	.9409	.0000	.0000	.6600	.6193	.3392	.3441	.6636
30	5.35	8.83	9.24	51.75	51.85	.0063	.5547	.2187	.0570	.0554	.9499	.0000	.0000	.6756	.6218	.3929	.4035	.6952
50	5.58	10.05	7.00	47.14	44.14	.0157	.4834	.1299	.0382	.0336	.9711	.0000	.0000	.7622	.6124	.4387	.4532	.7673
70	3.30	8.82	7.22	43.58	41.98	.0118	.4569	.1066	.0350	.0312	.9773	.0000	.0000	.7763	.5961	.4509	.5258	.8308
85	4.50	10.84	9.93	45.08	44.07	.0304	.4833	.1422	.0505	.0397	.9715	.0000	.0000	.7029	.5753	.4352	.5328	.8560
90	4.69	11.23	10.55	45.86	45.15	.0386	.5042	.1707	.0621	.0480	.9668	.0000	.0000	.6483	.5658	.4218	.5310	.8592
95	4.92	11.65	10.13	47.76	46.22	.0494	.5362	.2004	.0747	.0563	.9627	.0000	.0000	.6004	.5511	.4018	.5282	.8653

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
6656.	127.54	1.1143	1.3558	79.53	80.39

Table XIX(c) Performance with Hub Radial Distortion, Nominal Stator, Solid Casing

Rotor

95% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	435.6	935.1	435.6	513.8	.0	781.3	.00	56.66	43.00	-29.22	595.9	589.3	-406.5	287.9	406.5	493.4
10	14.306	16.853	452.5	907.5	452.5	523.6	.0	741.0	.00	54.74	44.14	-23.06	630.8	570.1	-439.4	223.4	439.4	517.6
15	15.361	17.635	466.1	883.6	466.1	529.7	.0	707.1	.00	53.15	45.33	-17.31	663.3	555.7	-471.8	165.5	471.8	541.6
30	18.427	19.988	505.0	827.1	505.0	561.8	.0	606.5	.00	47.17	48.25	.69	758.5	563.7	-565.9	-7.3	565.9	613.9
50	22.273	23.137	613.8	774.2	613.8	594.3	.0	495.8	.00	39.82	48.09	19.76	919.1	633.2	-684.1	-214.8	684.1	710.6
70	25.934	26.288	668.1	727.5	668.1	596.5	.0	416.4	.00	34.91	50.00	33.21	1039.7	713.5	-796.5	-391.0	796.5	807.4
85	28.573	28.641	666.5	698.7	666.5	575.6	.0	376.0	.00	34.52	52.78	40.04	1102.0	751.9	-877.6	-483.7	877.6	879.6
90	29.403	29.417	661.6	679.8	661.6	550.3	.0	399.0	.00	35.95	53.77	42.51	1119.5	746.6	-903.0	-504.4	903.0	903.5
95	30.215	30.208	653.8	652.2	653.8	513.3	.0	402.4	.00	38.10	54.84	45.67	1135.1	734.5	-928.0	-525.4	928.0	927.8

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	1.88	8.79	7.91	72.21	71.39	.0036	.3124	.0604	.0111	.0104	1.4874	.9725	.9710	.7842	.3973	.8445	.5446	.5322
10	2.31	8.86	7.95	67.20	66.28	.0053	.3778	.0104	.0021	.0010	1.4972	.9935	.9931	.9749	.4148	.8164	.5798	.5129
15	2.75	8.98	9.33	62.64	63.02	.0078	.4290	-.0250	-.0056	-.0073	1.5073	1.0114	1.0121	1.0438	.4269	.7922	.6107	.4982
30	2.44	8.02	13.98	47.56	53.13	.0130	.4768	-.1034	-.0274	-.0308	1.5239	1.0673	1.0713	1.1498	.4712	.7372	.7084	.5024
50	-.95	3.95	14.90	28.33	38.95	.0067	.4741	.0008	.0002	-.0017	1.4529	.9971	.9969	.9970	.5765	.6876	.6644	.5623
70	-1.33	2.84	12.98	16.78	26.90	.0058	.4452	.0597	.0163	.0147	1.3920	.9223	.9186	.9179	.6230	.6442	.9731	.6318
85	-.65	3.00	9.91	12.74	19.66	.0082	.4427	.0971	.0258	.0236	1.3795	.8672	.8610	.8682	.6189	.6155	1.0262	.6624
90	-.38	3.09	10.15	11.26	18.33	.0095	.4593	.1338	.0349	.0324	1.3684	.8183	.8100	.8246	.6138	.5965	1.0409	.6551
95	-.26	3.09	11.46	9.17	17.53	.0113	.4807	.1759	.0443	.0415	1.3528	.7626	.7523	.7784	.6061	.5696	1.0539	.6415

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1149	1.4306	93.32	93.65	38.22

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	860.1	563.6	500.7	562.8	699.1	-29.5	54.38	-3.00	-16.46	47.97	522.6	840.6	147.8	-624.4	551.3	594.8
10	18.665	19.908	856.6	569.5	534.6	569.2	668.9	-18.7	51.37	-1.89	-10.20	47.91	543.8	849.1	95.6	-630.2	573.3	611.4
15	19.362	20.485	853.9	589.4	560.7	589.2	643.9	-15.4	48.95	-1.50	-5.06	47.57	563.3	873.3	49.3	-644.6	594.7	629.1
30	21.439	22.268	846.5	640.0	630.4	639.8	564.6	-13.9	41.84	-1.25	8.39	47.48	638.1	946.8	-93.9	-697.8	658.4	683.9
50	24.186	24.672	830.7	666.7	682.5	666.6	473.2	-15.6	34.73	-1.34	21.50	49.24	734.4	1021.0	-269.6	-773.3	742.8	757.7
70	26.928	27.186	800.1	657.2	689.4	656.9	406.0	-20.1	30.49	-1.75	31.40	52.47	807.9	1078.2	-421.0	-855.0	827.0	835.0
85	28.974	29.120	776.8	647.0	670.8	646.8	391.6	-15.7	30.28	-1.39	36.60	54.60	835.6	1116.6	-498.3	-910.1	869.9	874.4
90	29.643	29.759	760.5	616.3	649.1	616.2	396.2	-11.5	31.40	-1.07	38.38	56.34	828.1	1112.0	-514.2	-925.5	910.4	914.0
95	30.316	30.402	737.6	569.5	619.1	569.4	400.9	-13.8	32.93	-1.39	40.57	59.00	815.1	1105.4	-530.1	-947.5	931.1	933.7

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-1.00	1.52	12.86	57.39	68.86	.0019	.5256	.1603	.0354	.0350	.9482	.0000	.0000	.7659	.7668	.4874	.4679	.7270
10	-.97	1.72	13.93	53.25	65.49	.0012	.5136	.1707	.0391	.0389	.9451	.0000	.0000	.7452	.7648	.4929	.4882	.7349
15	-.76	2.16	13.89	50.45	62.24	.0012	.4882	.1505	.0357	.0354	.9519	.0000	.0000	.7605	.7622	.5110	.5050	.7572
30	-2.38	1.27	10.16	43.09	51.92	.0003	.4198	.0783	.0205	.0204	.9753	.0000	.0000	.8531	.7561	.5585	.5739	.8262
50	-5.89	-1.25	6.75	36.07	44.01	.0001	.3693	.0314	.0093	.0092	.9904	.0000	.0000	.9313	.7426	.5852	.6594	.8961
70	-8.17	-2.52	7.28	32.24	42.02	.0000	.3531	.0324	.0107	.0107	.9907	.0000	.0000	.9196	.7141	.5776	.7230	.9476
85	-9.09	-2.69	9.78	31.67	44.16	.0000	.3529	.0376	.0134	.0134	.9897	.0000	.0000	.8895	.6893	.5669	.7425	.9782
90	-8.87	-2.29	10.33	32.47	45.15	.0001	.3843	.0789	.0287	.0287	.9793	.0000	.0000	.7963	.6716	.5374	.7321	.9695
95	-8.50	-1.74	10.23	34.32	46.23	.0003	.4372	.1357	.0506	.0505	.9664	.0000	.0000	.7070	.6495	.4936	.7186	.9581

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7039.	169.51	1.1149	1.4006	88.02	88.12

Table XIX(c) Performance with Hub Radial Distortion, Nominal Stator, Solid Casing

95% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	363.7	871.7	363.7	397.9	.0	775.5	.00	62.82	48.11	-35.31	544.9	489.0	-405.8	283.0	405.8	492.5
10	14.306	16.853	377.7	843.6	377.7	425.3	.0	728.0	.00	59.68	49.24	-26.41	578.9	476.9	-438.6	211.4	438.6	516.7
15	15.361	17.635	389.5	822.9	389.5	446.6	.0	691.0	.00	57.12	50.39	-18.59	611.2	472.2	-470.9	150.4	470.9	540.6
30	18.427	19.988	421.9	774.2	421.9	475.0	.0	611.2	.00	52.12	53.24	.17	705.1	476.8	-564.9	-1.6	564.9	612.8
50	22.273	23.137	516.2	716.4	516.2	495.0	.0	517.6	.00	46.26	52.91	21.00	856.0	532.4	-682.8	-191.7	682.8	709.3
70	25.934	26.288	569.7	687.4	569.7	517.4	.0	452.5	.00	41.17	54.37	34.29	978.1	626.8	-795.1	-353.4	795.1	805.9
85	28.573	28.641	570.6	673.0	570.6	500.1	.0	450.3	.00	42.00	56.92	40.53	1045.4	658.1	-876.0	-427.7	876.0	878.1
90	29.403	29.417	566.7	663.4	566.7	480.9	.0	457.0	.00	43.54	57.84	42.77	1064.7	655.1	-901.4	-444.9	901.4	901.8
95	30.215	30.208	560.3	642.5	560.3	449.2	.0	459.4	.00	45.64	58.83	46.09	1082.6	647.8	-926.3	-466.7	926.3	926.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO1	PO2/ TOTAL	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	6.95	13.88	2.11	83.42	71.67	.0204	.4294	.1503	.0257	.0222	1.4648	.9433	.9402	.7074	.3295	.7804	.4942	.4378
10	7.40	13.98	4.67	75.65	66.34	.0240	.4774	.0636	.0126	.0079	1.4735	.9723	.9707	.8968	.3433	.7531	.5270	.4257
15	7.78	14.03	8.03	68.98	62.99	.0287	.5103	-.0040	-.0009	-.0072	1.4867	1.0006	1.0006	1.0045	.3542	.7329	.5581	.4205
30	7.42	13.02	13.47	53.07	53.14	.0352	.5623	-.0733	-.0194	-.0287	1.5120	1.0415	1.0439	1.0912	.3909	.6852	.6534	.4220
50	3.88	8.79	16.18	31.91	39.00	.0177	.5608	.0321	.0089	.0039	1.4598	.9713	.9697	.9601	.4793	.6306	.7955	.4686
70	3.02	7.20	14.03	20.08	26.88	.0135	.5111	.0661	.0178	.0142	1.4327	.9280	.9243	.9153	.5254	.6033	.9047	.5502
85	3.48	7.13	10.45	16.38	19.70	.0161	.5203	.1167	.0308	.0265	1.4389	.8697	.8629	.8538	.5246	.5870	.9631	.5741
90	3.67	7.16	10.41	15.07	18.33	.0170	.5366	.1486	.0386	.0342	1.4382	.8354	.8268	.8186	.5207	.5767	.9799	.5695
95	3.74	7.08	11.89	12.74	17.53	.0186	.5545	.1835	.0459	.0412	1.4293	.7969	.7865	.7827	.5146	.5563	.9953	.5608

TO/TO INLET	PO/PO INLET	EFF-AD INLET	EFF-P INLET	WC1/A1 LBM/SEC SQFT
		%	%	
1.1221	1.4553	92.59	92.97	33.79

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	790.0	455.2	376.9	449.0	694.0	-74.6	61.48	-9.43	-20.89	56.11	404.6	805.2	143.7	-668.4	550.3	593.8
10	18.665	19.908	780.4	444.2	418.6	439.3	657.8	-65.5	57.52	-8.47	-11.78	56.98	428.9	806.0	85.6	-675.8	572.2	610.3
15	19.362	20.485	776.6	455.7	454.8	452.5	629.2	-52.5	54.14	-6.66	-4.57	56.39	456.9	817.4	35.6	-680.6	593.6	628.0
30	21.439	22.268	770.5	524.7	518.6	524.6	569.6	-7.5	47.68	-.84	9.49	52.76	526.9	867.0	-87.7	-690.2	657.3	682.7
50	24.186	24.672	749.3	556.4	562.4	556.4	494.8	-5.6	41.34	-.58	23.57	53.85	614.9	943.6	-246.6	-762.0	741.5	756.4
70	26.928	27.186	740.3	577.5	594.0	577.4	441.8	-9.6	36.64	-.96	32.84	55.59	707.3	1021.9	-383.7	-843.1	825.5	833.5
85	28.974	29.120	734.5	584.4	584.1	584.4	445.3	-3.8	37.32	-.37	37.17	56.90	733.2	1070.2	-443.0	-896.5	888.3	892.7
90	29.643	29.759	727.7	571.8	569.1	571.8	453.5	-1.6	38.55	-.16	38.66	57.97	728.8	1078.1	-455.3	-913.9	908.8	912.3
95	30.316	30.402	710.9	533.8	544.1	533.8	457.6	-7.0	40.07	-.76	40.93	60.39	720.2	1080.2	-471.8	-939.1	929.4	932.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P PO1	PO2/ TOTAL	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	6.09	8.62	6.43	70.91	68.87	.0165	.6326	.1701	.0372	.0336	.9525	.0000	.0000	.7806	.6966	.3907	.3586	.6911
10	4.95	7.65	7.29	65.99	65.49	.0097	.6377	.2111	.0479	.0457	.9423	.0000	.0000	.7303	.6903	.3813	.3831	.6919
15	4.40	7.29	8.71	60.80	62.22	.0067	.6165	.2203	.0519	.0503	.9403	.0000	.0000	.7062	.6876	.3916	.4051	.7024
30	3.59	7.16	10.54	48.51	51.90	.0049	.5113	.1494	.0391	.0378	.9601	.0000	.0000	.7585	.6824	.4531	.4640	.7486
50	.92	5.48	7.68	41.92	44.20	.0042	.4523	.0847	.0250	.0237	.9784	.0000	.0000	.8347	.6626	.4622	.5396	.8177
70	-1.90	3.69	8.07	37.60	42.01	.0021	.4196	.0651	.0214	.0207	.9838	.0000	.0000	.8588	.6538	.5016	.6220	.8875
85	-2.09	4.27	10.73	37.69	44.14	.0057	.4210	.0706	.0251	.0230	.9828	.0000	.0000	.8398	.6452	.5056	.6435	.9258
90	-1.77	4.79	11.25	38.71	45.15	.0090	.4413	.0943	.0343	.0310	.9775	.0000	.0000	.7890	.6371	.4929	.6380	.9293
95	-1.31	5.43	10.85	40.82	46.24	.0136	.4924	.1491	.0556	.0505	.9660	.0000	.0000	.6991	.6199	.4578	.6279	.9264

NCORR INLET	WCORR INLET	TO/TO INLET	PO/PO INLET	EFF-AD INLET	EFF-P INLET
RPM	LBM/SEC			%	%
7026.	149.84	1.1221	1.4150	85.50	86.05

Table XIX(c) Performance with Hub Radial Distortion, Nominal Stator, Solid Casing

95% of Design Speed

Rotor

% SPAN	R1A-1 IN	R1A-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.835	16.065	316.9	760.7	316.9	277.8	.0	708.1	.00	68.58	52.05	-37.44	815.5	361.3	-404.6	814.0	404.6	493.8
10	14.306	16.853	330.0	751.5	330.0	307.9	.0	685.4	.00	65.81	53.08	-28.61	649.6	350.9	-439.5	167.7	439.5	517.7
15	15.361	17.636	340.5	752.9	340.5	354.4	.0	664.2	-.00	61.92	54.14	-19.07	582.0	375.0	-471.9	122.5	471.9	541.8
30	18.427	19.988	362.4	753.9	362.4	448.0	.0	606.3	.00	53.54	57.38	.97	672.1	448.3	-566.1	-7.7	566.1	614.0
50	22.273	23.137	466.8	725.5	466.8	472.5	.0	550.5	.00	49.36	56.27	18.73	822.7	499.0	-684.2	-160.3	684.2	710.8
70	25.934	26.288	503.2	680.1	503.2	472.2	.0	489.5	.00	46.03	57.72	33.96	942.3	569.5	-796.7	-318.1	796.7	807.6
85	28.573	28.641	499.7	658.7	499.7	440.9	.0	480.4	.00	47.99	60.36	41.51	1010.0	589.3	-877.8	-390.5	877.8	879.9
90	29.403	29.417	496.2	647.9	496.2	429.7	.0	484.8	.00	48.47	61.19	44.15	1030.8	601.6	-903.3	-418.9	903.3	903.7
95	30.215	30.208	492.7	636.9	492.7	418.3	.0	490.2	.00	48.96	62.01	46.83	1051.1	614.2	-928.2	-447.8	928.2	928.0

% SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	P02/P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	10.83	17.78	-1.21	89.74	70.68	.0551	.6358	.5423	.0904	.0809	1.3471	.8006	.7920	.4005	.2837	.6747	.4592	.3116
10	11.29	18.05	2.03	81.69	65.72	.0573	.6597	.4057	.0787	.0673	1.3709	.8355	.8280	.5626	.2944	.6652	.4865	.3106
15	11.51	17.89	7.60	73.21	62.93	.0625	.6403	.2534	.0559	.0419	1.4049	.8885	.8830	.7156	.3053	.6661	.5156	.3318
30	11.85	17.51	14.24	56.40	53.07	.0719	.5813	-.0229	-.0061	-.0251	1.4913	1.0115	1.0121	1.0275	.3290	.6658	.6100	.3959
50	7.23	12.16	13.68	37.54	38.75	.0311	.5961	.0708	.0199	.0111	1.4803	.9470	.9440	.9149	.4223	.6367	.7609	.4379
70	6.40	10.56	13.79	23.76	26.96	.0233	.5664	.1294	.0350	.0287	1.4938	.8782	.8718	.8428	.4610	.5936	.8686	.4971
85	6.89	10.54	11.38	18.84	19.66	.0271	.5850	.1887	.0491	.0420	1.4469	.8151	.8053	.7763	.4561	.5707	.9258	.5105
90	6.86	10.33	12.20	17.04	18.89	.0285	.5825	.1987	.0504	.0431	1.4467	.8019	.7915	.7648	.4531	.5602	.9429	.5201
95	6.83	10.13	13.03	15.17	18.07	.0300	.5798	.2087	.0513	.0439	1.4464	.7889	.7777	.7538	.4500	.5495	.9603	.5298

T0/T0 INLET	P0/P0 INLET	EFF-AD INLET $	EFF-P INLET $	WC1/A1 LBM/SEC SQFT
1.1276	1.4530	88.31	88.90	30.09

Stator

% SPAN	R1A-1 IN	R1A-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.961	19.368	673.5	299.2	229.0	284.3	633.1	-93.2	70.11	-18.17	-19.75	67.66	244.0	744.7	81.7	-688.2	651.5	695.0
10	18.665	19.908	676.2	314.9	276.5	301.6	616.7	-88.7	65.86	-16.40	-9.15	66.70	280.5	762.5	43.3	-700.3	573.4	611.6
15	19.362	20.486	690.3	341.4	335.1	331.9	602.8	-78.9	60.96	-13.48	-1.64	64.91	335.7	782.3	8.0	-708.2	594.8	629.3
30	21.437	22.208	737.0	462.2	476.9	460.7	581.9	-36.8	49.69	-4.59	11.44	57.43	484.6	865.6	-96.7	-720.9	658.6	684.1
50	24.186	24.427	761.3	561.1	536.0	541.9	526.5	-7.1	44.49	-.73	21.97	53.70	578.3	949.2	-216.8	-765.0	743.0	767.9
70	26.928	27.186	729.3	558.2	552.9	558.0	475.7	-14.1	40.71	-1.45	32.45	56.69	655.2	1014.3	-351.5	-849.3	827.2	835.2
85	28.974	29.120	719.5	546.4	533.3	546.4	483.0	-8.0	42.17	-.84	37.35	58.81	671.0	1055.1	-407.1	-902.6	890.1	894.6
90	29.643	29.759	711.6	534.9	524.8	534.9	480.5	-8.3	42.49	-.89	39.29	59.88	679.4	1066.6	-430.1	-922.5	910.6	914.2
95	30.316	30.402	703.7	521.3	516.3	521.2	478.1	-9.7	42.80	-1.07	41.23	61.07	687.9	1078.9	-453.3	-943.7	931.3	934.0

% SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	P02/P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	14.39	16.93	-1.76	88.28	69.40	.0706	.7896	.1947	.0413	.0263	.9589	.0000	.0000	.7787	.5908	.2558	.2201	.6366
10	13.45	16.13	-.14	82.26	65.89	.0509	.7701	.2440	.0541	.0428	.9482	.0000	.0000	.7161	.5941	.2688	.2497	.6519
15	11.48	14.35	2.22	74.43	62.54	.0312	.7359	.2901	.0673	.0601	.9361	.0000	.0000	.6534	.6051	.2921	.2898	.6693
30	5.58	9.05	6.92	54.27	51.89	.0086	.5825	.2795	.0731	.0709	.9309	.0000	.0000	.6068	.6474	.3978	.4182	.7365
50	4.47	8.89	7.36	45.21	43.96	.0143	.4595	.1348	.0398	.0359	.9457	.0000	.0000	.7408	.6627	.4855	.4945	.8201
70	2.18	7.66	7.58	42.16	42.00	.0114	.4546	.1047	.0344	.0307	.9748	.0000	.0000	.7974	.6426	.4821	.5693	.8777
85	2.84	9.14	10.26	43.00	44.07	.0249	.4823	.1305	.0463	.0375	.9696	.0000	.0000	.7576	.6291	.4691	.5839	.9057
90	2.17	8.69	10.47	43.38	45.30	.0261	.4979	.1501	.0547	.0451	.9658	.0000	.0000	.7066	.6210	.4582	.5899	.9135
95	1.19	7.93	10.46	43.88	46.45	.0275	.5175	.1760	.0657	.0554	.9608	.0000	.0000	.6572	.6116	.4454	.5970	.9214

NCORR INLET RPM	WCORR INLET LBM/SEC	T0/T0 INLET	P0/P0 INLET	EFF-AD INLET $	EFF-P INLET $
7091.	133.46	1.1276	1.3994	79.08	80.04

Table XX Performance with Hub Radial Distortion, 10° Closed Stator, Solid Casing

Rotor

95% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	398.5	898.3	398.5	451.6	.0	776.4	.00	59.81	45.46	-32.15	568.4	534.3	-405.3	284.5	405.3	491.9
10	14.306	16.853	413.7	879.1	413.7	457.2	.0	750.8	.00	58.65	46.61	-27.13	602.6	514.5	-438.1	234.8	438.1	516.0
15	15.361	17.635	426.4	859.4	426.4	474.1	.0	716.4	-.00	56.48	47.79	-20.40	634.9	507.3	-470.4	176.4	470.4	540.0
30	18.427	19.988	462.1	804.9	462.1	512.9	.0	620.4	.00	50.41	50.68	-.98	729.3	514.6	-564.2	8.3	564.2	612.0
50	22.273	23.137	566.6	747.5	566.6	547.7	.0	508.2	.00	42.83	50.28	19.91	886.7	584.8	-682.0	-200.3	682.0	708.5
70	25.934	26.288	622.8	717.5	622.8	568.1	.0	438.1	.00	37.63	51.88	32.81	1009.2	676.6	-794.1	-366.8	794.1	804.9
85	28.573	28.641	623.4	701.4	623.4	559.4	.0	423.1	.00	37.10	54.53	39.05	1074.3	720.4	-874.9	-453.9	874.9	877.0
90	29.403	29.417	619.0	681.3	619.0	530.5	.0	427.6	.00	38.87	55.49	41.73	1092.6	710.8	-900.3	-473.2	900.3	900.9
95	30.215	30.208	611.7	634.6	611.7	461.3	.0	435.7	.00	43.37	56.53	46.68	1109.1	672.5	-925.2	-489.3	925.2	925.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	9.32	11.24	5.21	77.61	71.60	.0090	.3737	.1762	.0312	.0296	1.4559	.9282	.9243	.5654	.3620	.8072	.5168	.4802
10	4.78	11.36	3.95	73.74	66.33	.0118	.4446	.1103	.0217	.0194	1.4768	.9505	.9477	.7980	.3768	.7872	.5495	.4607
15	5.18	11.45	6.19	68.19	62.95	.0159	.4829	.0393	.0086	.0053	1.4936	.9798	.9786	.9359	.3884	.7675	.5799	.4531
30	4.96	10.57	12.31	51.65	53.11	.0216	.5283	-.0620	-.0164	-.0221	1.5171	1.0365	1.0387	1.0820	.4273	.7196	.6745	.4568
50	1.30	6.22	15.10	30.37	39.00	.0106	.5135	.0155	.0043	.0014	1.4566	.9839	.9831	.9786	.5274	.6610	.8258	.5171
70	.54	4.72	12.56	19.07	26.88	.0084	.4722	.0510	.0140	.0117	1.4226	.9393	.9362	.9311	.5774	.6329	.9382	.5968
85	1.10	4.74	8.93	15.47	19.66	.0106	.4664	.0815	.0220	.0191	1.4251	.8991	.8940	.8906	.5761	.6159	.9959	.6326
90	1.34	4.81	9.38	13.76	18.33	.0115	.4879	.1259	.0332	.0302	1.4120	.8455	.8379	.8384	.5714	.5957	1.0120	.6215
95	1.43	4.77	12.47	9.85	17.53	.0134	.5352	.2047	.0506	.0473	1.3769	.7508	.7394	.7667	.5644	.5508	1.0258	.5837

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1191	1.4451	92.93	93.29	36.16

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	818.4	479.5	432.3	479.4	694.6	6.1	58.10	.72	-18.60	50.76	456.8	757.9	145.0	-587.0	549.7	593.1
10	18.665	19.908	821.4	527.4	469.1	527.3	677.5	13.2	55.59	1.42	-12.94	48.55	476.6	796.2	106.0	-596.3	571.6	609.6
15	19.362	20.485	821.7	559.0	499.0	567.7	652.3	35.4	52.58	3.60	-6.92	46.70	503.5	813.3	59.4	-591.9	592.9	627.3
30	21.439	22.268	812.1	589.3	570.2	584.9	577.8	71.4	45.37	6.95	7.76	46.22	576.6	845.4	-78.7	-610.5	656.5	681.8
50	24.186	24.672	790.0	616.2	623.2	608.9	485.1	94.1	37.89	8.78	22.19	47.36	674.3	899.0	-255.5	-661.3	740.6	755.5
70	26.928	27.186	778.8	641.6	650.8	635.4	427.6	89.1	33.30	7.99	31.36	49.47	762.5	977.9	-396.9	-743.3	824.5	832.4
85	28.974	29.120	770.1	647.2	646.6	639.9	418.3	97.2	32.90	8.64	35.95	51.15	798.7	1020.1	-468.9	-794.4	887.2	891.7
90	29.643	29.759	753.6	630.1	622.9	621.5	424.1	103.5	34.25	9.46	37.82	52.42	788.6	1019.1	-483.6	-807.7	907.7	911.2
95	30.316	30.402	714.0	561.5	566.9	553.8	434.0	92.6	37.44	9.50	41.08	56.55	752.1	1004.7	-494.3	-838.3	928.3	930.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-7.37	-4.85	6.92	57.38	69.20	.0000	.5931	.2264	.0501	.0501	.9328	.0000	.0000	.7025	.7271	.9122	.9075	.6515
10	-6.73	-4.03	7.46	54.18	65.76	.0000	.5371	.1904	.0437	.0437	.9432	.0000	.0000	.7202	.7303	.9547	.9255	.6864
15	-7.34	-4.41	9.20	48.98	62.45	.0000	.4923	.1675	.0397	.0397	.9500	.0000	.0000	.7389	.7297	.9832	.4521	.7031
30	-8.86	-5.20	8.46	38.42	52.03	.0000	.4337	.1599	.0416	.0416	.9531	.0000	.0000	.7169	.7203	.5112	.5160	.7335
50	-12.70	-8.09	7.09	29.10	44.20	.0000	.3637	.1206	.0352	.0352	.9662	.0000	.0000	.7410	.7020	.5375	.6006	.7842
70	-15.29	-9.67	7.03	25.32	42.03	.0000	.3181	.0858	.0280	.0280	.9765	.0000	.0000	.7749	.6920	.5616	.6769	.8559
85	-16.47	-10.10	9.78	24.26	44.15	.0000	.3071	.0826	.0290	.0290	.9779	.0000	.0000	.7631	.6816	.5652	.7067	.8908
90	-16.06	-9.50	10.87	24.79	45.15	.0000	.3182	.0885	.0318	.0318	.9773	.0000	.0000	.7490	.6642	.5482	.6951	.8866
95	-13.93	-7.18	11.11	27.94	46.23	.0000	.3914	.1563	.0571	.0571	.9641	.0000	.0000	.6923	.6247	.4892	.6582	.8669

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7018.	160.36	1.1191	1.3944	83.80	84.27

Table XX Performance with Hub Radial Distortion, 10° Closed Stator, Solid Casing

95% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	377.3	888.6	377.3	429.0	.0	780.8	.00	61.48	47.07	-34.11	554.3	513.3	-406.0	288.0	406.0	492.8
10	14.306	16.853	392.1	865.5	392.1	445.7	.0	741.6	.00	58.97	48.20	-26.71	588.5	600.4	-438.8	224.6	438.8	517.0
15	15.361	17.635	409.3	846.0	409.3	465.0	.0	706.5	-.00	56.63	49.35	-19.58	620.9	694.6	-471.2	165.6	471.2	541.0
30	18.427	19.988	437.6	794.4	437.6	491.9	.0	623.6	.00	51.71	52.25	-1.23	714.8	793.9	-565.2	10.5	565.2	613.1
50	22.273	23.137	534.9	730.6	534.9	516.2	.0	516.6	.00	45.00	51.94	20.33	867.7	652.8	-683.2	-193.1	683.2	709.7
70	25.934	26.288	589.7	700.9	589.7	537.5	.0	449.8	.00	39.93	53.44	33.52	990.3	645.3	-795.5	-356.5	795.5	806.9
85	28.573	28.641	590.2	686.7	590.2	523.4	.0	444.6	.00	40.35	56.04	39.66	1056.7	679.9	-876.6	-434.0	876.6	878.6
90	29.403	29.417	586.1	672.5	586.1	499.9	.0	449.8	.00	41.98	56.98	42.15	1075.6	674.3	-901.9	-462.6	901.9	902.4
95	30.215	30.208	578.8	639.7	578.8	449.7	.0	465.0	.00	45.33	58.01	46.36	1092.7	651.7	-926.8	-471.7	926.8	926.6

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	5.93	12.85	3.27	81.18	71.63	.0152	.3974	.1771	.0307	.0281	1.4617	.9316	.9279	.6043	.3422	.7971	.5033	.4604
10	6.36	12.94	4.36	74.91	66.33	.0184	.4515	.0877	.0173	.0137	1.4777	.9617	.9596	.8490	.3569	.7740	.6365	.4475
15	6.75	13.00	7.09	68.93	62.99	.0226	.4880	.0165	.0036	-.0013	1.4937	.9910	.9905	.9728	.3681	.7547	.5676	.4413
30	6.45	12.09	12.07	53.48	53.13	.0294	.5491	-.0581	-.0154	-.0231	1.5191	1.0328	1.0347	1.0744	.4056	.7040	.6629	.4377
50	2.91	7.82	15.51	31.61	38.99	.0198	.5428	.0332	.0092	.0051	1.4580	.9695	.9678	.9577	.4975	.6442	.8078	.4674
70	2.09	6.27	13.26	19.92	26.88	.0115	.4976	.0684	.0186	.0155	1.4276	.9236	.9197	.9109	.5451	.6163	.9181	.5673
85	2.41	6.25	9.55	14.38	19.68	.0190	.5028	.1127	.0301	.0264	1.4333	.8706	.8639	.8558	.5436	.6003	.9760	.5944
90	2.82	6.30	9.79	14.83	18.33	.0148	.5210	.1989	.0391	.0351	1.4274	.8299	.8212	.8153	.5394	.5856	.9925	.5873
95	2.92	6.24	12.15	11.65	17.53	.0165	.5536	.2037	.0504	.0465	1.4069	.7682	.7569	.7600	.5324	.5540	1.0069	.5644

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WCI/AI LBM/SEC SQFT
1.1221	1.4518	91.88	92.29	34.71

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	806.7	436.6	402.6	435.3	698.7	34.7	60.05	4.56	-20.26	52.11	430.0	708.8	148.1	-559.4	550.6	594.1
10	18.665	19.908	804.0	456.1	449.2	454.5	669.6	38.1	56.44	4.79	-12.47	51.57	455.8	731.0	97.0	-572.5	572.5	610.7
15	19.362	20.485	803.3	488.0	480.5	485.7	643.9	47.0	53.25	5.50	-5.97	50.14	483.8	757.7	49.5	-581.4	593.9	628.4
30	21.439	22.268	796.1	552.3	543.8	548.7	581.1	62.7	46.89	6.51	7.92	48.51	550.1	828.2	-76.5	-620.4	657.6	683.1
50	24.186	24.672	767.5	671.4	587.9	566.3	493.5	75.6	40.03	7.60	22.81	50.25	638.6	885.9	-248.4	-681.2	741.9	756.8
70	26.928	27.186	755.6	590.0	619.9	585.0	439.2	77.0	35.53	7.50	32.15	52.30	726.6	956.7	-386.8	-757.0	826.0	833.9
85	28.974	29.120	748.9	597.1	606.2	591.3	439.6	83.0	35.95	7.99	36.53	53.88	754.5	1003.1	-449.1	-810.2	888.8	893.5
90	29.643	29.759	737.6	582.4	587.2	576.3	446.3	84.0	37.24	8.29	38.26	55.19	747.8	1009.5	-463.0	-828.9	909.3	912.9
95	30.314	30.902	710.1	531.9	546.6	526.8	453.2	73.4	39.67	7.93	41.09	58.49	725.2	1007.8	-476.7	-859.2	929.9	932.6

%SPAN	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-5.46	-2.94	10.76	55.48	69.20	.0000	.6332	.1792	.0395	.0395	.9482	.0000	.0000	.7816	.7146	.3741	.3828	.6073
10	-6.00	-3.31	10.81	51.65	65.74	.0000	.6063	.1861	.0425	.0425	.9465	.0000	.0000	.7636	.7132	.3914	.4060	.6273
15	-6.51	-3.61	11.09	47.75	62.44	.0000	.5629	.1665	.0393	.0393	.9522	.0000	.0000	.7730	.7126	.4198	.4301	.6518
30	-7.25	-3.63	8.02	40.38	52.03	.0000	.4727	.1017	.0266	.0265	.9712	.0000	.0000	.8331	.7063	.4774	.4883	.7160
50	-10.51	-5.91	5.86	32.42	44.20	.0000	.4138	.0593	.0173	.0173	.9842	.0000	.0000	.8859	.6796	.4959	.5653	.7689
70	-13.09	-7.43	6.54	28.04	42.03	.0000	.3758	.0486	.0159	.0159	.9874	.0000	.0000	.8938	.6686	.5131	.6418	.8320
85	-13.43	-7.07	9.12	27.96	44.19	.0000	.3712	.0526	.0185	.0185	.9867	.0000	.0000	.8786	.6592	.5175	.6639	.8693
90	-13.07	-6.52	9.70	28.95	45.15	.0000	.3887	.0669	.0291	.0241	.9836	.0000	.0000	.8475	.6470	.5029	.6559	.8718
95	-11.70	-4.95	9.54	31.74	46.23	.0000	.4499	.1172	.0433	.0433	.9733	.0000	.0000	.7651	.6199	.4564	.6326	.8647

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7030.	153.94	1.1221	1.4194	86.32	86.76

Table XX Performance with Hub Radial Distortion, 10° Closed Stator, Solid Casing

95% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	356.6	874.0	356.6	404.7	.0	774.5	.00	62.40	48.76	-34.63	541.3	493.0	-407.1	280.4	407.1	494.1
10	14.306	16.853	371.0	851.7	371.0	436.7	.0	730.8	.00	59.12	49.84	-25.95	575.6	487.2	-440.0	212.4	440.0	518.4
15	15.361	17.635	383.0	833.4	383.0	457.3	.0	696.6	-.00	56.71	50.95	-18.61	608.2	483.4	-472.5	154.2	472.5	542.4
30	18.427	19.988	414.2	783.5	414.2	472.6	.0	624.8	.00	52.88	53.84	-1.20	702.0	474.3	-566.8	10.0	566.8	614.8
50	22.273	23.137	504.9	719.4	504.9	488.2	.0	528.1	.00	47.23	53.61	20.45	851.0	523.0	-685.1	-183.5	685.1	711.7
70	25.934	26.288	556.4	687.2	556.4	503.8	.0	467.3	.00	42.84	55.09	34.07	972.6	608.8	-797.7	-341.2	797.7	808.6
85	28.573	28.641	556.6	674.2	556.6	489.2	.0	469.0	.00	43.49	57.65	40.44	1040.3	642.8	-878.9	-417.0	878.9	880.9
90	29.403	29.417	552.9	663.9	552.9	469.1	.0	469.7	.00	45.03	58.56	42.85	1060.0	639.9	-904.4	-435.1	904.4	904.8
95	30.215	30.208	546.7	640.6	546.7	434.0	.0	471.1	.00	47.35	59.53	46.54	1078.2	631.0	-929.4	-468.0	929.4	929.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	7.62	19.53	2.70	83.39	71.59	.0245	.4178	.1726	.0298	.0256	1.4616	.9360	.9326	.6493	.3232	.7826	.4913	.4915
10	8.00	14.56	5.11	75.79	66.32	.0279	.4579	.0621	.0124	.0069	1.4781	.9734	.9719	.8925	.3379	.7608	.5255	.4352
15	8.36	14.59	8.04	69.56	63.09	.0326	.4920	-.0091	-.0020	-.0092	1.4944	1.0028	1.0030	1.0125	.3488	.7427	.5574	.4308
30	7.93	13.50	12.10	55.04	53.16	.0394	.5695	-.0521	-.0138	-.0242	1.5192	1.0282	1.0300	1.0646	.3854	.6932	.6539	.4196
50	4.52	9.41	15.60	33.16	38.97	.0202	.5731	.0517	.0144	.0087	1.4635	.9560	.9536	.9372	.4700	.6326	.7932	.4598
70	3.74	7.91	13.82	21.02	26.89	.0156	.5319	.0951	.0257	.0215	1.4348	.9011	.8960	.8816	.5129	.6019	.8999	.5332
85	4.21	7.86	10.34	17.21	19.68	.0183	.5372	.1386	.0366	.0318	1.4438	.8510	.8431	.8293	.5110	.5870	.9578	.5597
90	4.39	7.87	10.49	15.71	18.33	.0193	.5531	.1697	.0440	.0390	1.4424	.8182	.8086	.7959	.5073	.5760	.9747	.5552
95	4.44	7.79	12.33	12.99	17.53	.0210	.5722	.2057	.0510	.0458	1.4313	.7789	.7676	.7601	.5014	.5634	.9903	.5452

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1253	1.4590	90.81	91.28	33.22

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	789.6	407.9	377.5	404.8	693.2	60.6	61.42	7.12	-20.55	53.40	404.2	679.0	141.1	-545.1	552.1	595.7
10	18.665	19.908	786.2	416.1	425.5	412.6	660.3	53.9	57.20	7.44	-11.68	53.54	435.6	694.3	86.2	-558.4	574.1	612.3
15	19.362	20.485	785.8	443.6	463.5	439.1	634.2	62.7	53.84	8.10	-4.85	52.29	465.7	717.6	38.7	-567.4	595.5	630.1
30	21.439	22.268	779.2	522.2	517.5	517.1	582.3	73.0	48.37	8.04	8.40	49.80	529.1	801.1	-77.1	-611.9	659.4	684.9
50	24.186	24.672	749.9	543.8	554.1	538.3	505.0	77.1	42.34	8.15	23.23	51.70	604.2	868.7	-238.9	-681.8	743.9	758.9
70	26.928	27.186	735.9	555.7	577.3	550.1	456.3	78.7	38.32	8.15	32.78	54.01	686.9	936.1	-372.0	-757.4	828.3	836.2
85	28.974	29.120	730.8	567.9	568.9	561.6	458.7	84.5	38.88	8.55	37.24	55.30	719.7	986.6	-432.5	-811.2	891.2	895.7
90	29.643	29.759	723.1	557.8	552.9	551.1	466.0	86.3	40.13	8.90	38.88	56.38	710.2	995.5	-445.7	-829.0	911.8	915.3
95	30.316	30.902	709.0	512.2	524.8	506.8	469.2	74.0	41.80	8.30	41.43	59.52	700.0	999.3	-463.2	-861.1	932.5	935.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	-4.07	-1.55	13.32	54.30	69.20	.0000	.6555	.1708	.0375	.0375	.9524	.0000	.0000	.7981	.6979	.3490	.3588	.5810
10	-5.21	-2.53	13.44	49.76	65.72	.0000	.6407	.1969	.0448	.0448	.9455	.0000	.0000	.7618	.6969	.3564	.3862	.5947
15	-5.89	-3.02	13.68	45.74	62.43	.0000	.6020	.1890	.0444	.0444	.9477	.0000	.0000	.7586	.6961	.3807	.4112	.6158
30	-5.76	-2.18	9.54	40.33	52.02	.0000	.4967	.1031	.0267	.0267	.9720	.0000	.0000	.8392	.6899	.4502	.4617	.6907
50	-8.11	-3.54	6.43	34.19	44.22	.0000	.4407	.0980	.0140	.0140	.9878	.0000	.0000	.9103	.6624	.4701	.5305	.7511
70	-10.23	-4.64	7.19	30.17	42.03	.0000	.4125	.0973	.0154	.0154	.9884	.0000	.0000	.9066	.6483	.4808	.6028	.8099
85	-10.51	-4.15	9.67	30.33	44.14	.0000	.4041	.0976	.0167	.0167	.9885	.0000	.0000	.9016	.6403	.4896	.6256	.8507
90	-10.19	-3.64	10.31	31.22	45.15	.0000	.4191	.0626	.0225	.0225	.9853	.0000	.0000	.8685	.6316	.4794	.6203	.8555
95	-9.57	-2.83	9.91	33.50	46.24	.0000	.4813	.1266	.0467	.0467	.9717	.0000	.0000	.7626	.6123	.4378	.6088	.8541

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7049.	147.33	1.1253	1.4289	85.79	86.29

Table XXI(a) Performance with Hub Radial Distortion, Nominal Stator, Treated Casing

80% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	335.9	777.8	335.9	424.7	.0	651.6	.00	56.90	45.51	-29.03	479.6	486.1	-342.3	236.1	342.3	415.5
10	14.306	16.853	351.0	753.1	351.0	433.2	.0	615.9	.00	54.87	46.49	-22.54	510.0	469.8	-370.0	180.1	370.0	435.9
15	15.361	17.635	362.4	732.6	362.4	439.8	.0	585.8	.00	53.09	47.61	-16.40	537.8	459.2	-397.3	129.7	397.3	456.1
30	18.427	19.988	393.1	685.1	393.1	466.4	.0	501.4	.00	47.04	50.48	1.84	617.8	468.1	-476.6	-15.5	476.6	516.9
50	22.273	23.137	486.9	641.9	486.9	497.9	.0	404.8	.00	39.09	49.79	21.12	754.3	535.3	-576.0	-193.6	576.0	598.4
70	25.934	26.288	531.4	614.9	531.4	511.3	.0	341.6	.00	33.74	51.60	33.46	855.8	613.3	-670.7	-338.3	670.7	679.9
85	28.573	28.641	533.9	601.8	533.9	498.9	.0	336.6	.00	34.01	54.15	39.01	911.7	642.1	-739.0	-404.1	739.0	740.7
90	29.403	29.417	531.3	587.7	531.3	474.2	.0	347.1	.00	36.20	55.06	41.10	927.7	629.3	-760.4	-413.7	760.4	760.8
95	30.215	30.208	525.7	560.4	525.7	437.4	.0	350.4	.00	38.70	56.07	44.57	941.8	614.0	-781.4	-430.9	781.4	781.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	4.40	11.30	7.98	74.55	71.29	.0035	.2989	.0498	.0091	.0085	1.3303	.9787	.9778	.7873	.3054	.7001	.4375	.4376
10	4.61	11.13	8.45	69.02	66.28	.0046	.3687	.0090	.0018	.0009	1.3334	.9947	.9945	.9756	.3215	.6761	.4690	.4217
15	5.08	11.27	10.28	64.01	63.10	.0038	.4191	-.0252	-.0057	-.0065	1.3381	1.0116	1.0121	1.0483	.3301	.6562	.4946	.4113
30	4.39	9.95	15.15	48.64	53.17	.0064	.4657	-.0946	-.0250	-.0267	1.3454	1.0618	1.0644	1.1513	.3681	.6111	.5777	.4176
50	.67	5.56	16.26	28.67	38.97	.0025	.4525	-.0032	-.0009	-.0016	1.2998	1.0018	1.0018	1.0032	.4533	.5716	.7032	.4766
70	.26	4.42	13.22	18.14	26.89	.0014	.4144	.0321	.0087	.0084	1.2719	.9559	.9544	.9471	.4888	.5469	.7906	.5454
85	.72	4.36	8.88	15.14	19.66	.0021	.4241	.0834	.0225	.0219	1.2687	.8829	.8790	.8683	.4892	.5331	.8382	.5688
90	.90	4.37	8.74	13.95	18.33	.0023	.4540	.1361	.0363	.0357	1.2607	.8134	.8073	.7983	.4865	.5187	.8517	.5555
95	.97	4.32	10.36	11.50	17.53	.0028	.4821	.1862	.0478	.0471	1.2459	.7457	.7378	.7393	.4812	.4928	.8635	.5398

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.0807	1.2920	93.93	94.14	32.09

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	718.7	486.6	420.1	486.1	583.1	-21.0	54.22	-2.48	-15.80	47.03	436.9	713.3	118.8	-521.9	464.3	500.9
10	18.665	19.908	713.6	493.8	446.8	493.6	556.1	-14.0	51.21	-1.62	-9.38	46.97	453.3	723.4	73.4	-528.8	482.7	514.9
15	19.362	20.485	710.2	514.4	468.7	514.2	533.4	-11.8	48.69	-1.32	-4.03	46.49	470.3	746.8	32.7	-541.6	500.7	529.8
30	21.439	22.268	701.4	549.2	523.2	549.0	466.7	-12.1	41.73	-1.26	9.44	46.96	531.2	804.4	-87.7	-588.0	554.5	575.9
50	24.186	24.672	686.0	561.9	566.8	561.8	386.1	-13.5	34.25	-1.37	22.84	49.23	615.8	860.3	-239.4	-651.6	625.5	638.1
70	26.928	27.186	670.6	566.3	581.9	566.1	333.1	-14.9	29.79	-1.51	31.96	51.75	686.1	914.3	-363.3	-718.0	696.4	703.1
85	28.974	29.120	661.0	565.2	570.9	565.1	333.1	-10.5	30.26	-1.07	36.09	53.50	706.5	950.0	-416.2	-763.6	749.3	753.1
90	29.643	29.759	648.6	534.8	549.4	534.7	344.9	-8.5	32.12	-.91	37.52	55.50	692.6	944.2	-421.8	-778.1	766.6	769.6
95	30.316	30.402	625.4	493.0	518.9	492.8	349.1	-15.9	33.94	-1.84	39.97	58.44	677.0	941.4	-434.9	-802.1	784.0	786.3

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-1.15	1.38	13.38	56.70	68.86	.0000	.5024	.1624	.0359	.0359	.9606	.0000	.0000	.7374	.6410	.4255	.3910	.6237
10	-1.10	1.59	14.21	52.84	65.49	.0000	.4854	.1592	.0365	.0365	.9619	.0000	.0000	.7336	.6371	.4323	.4070	.6332
15	-1.04	1.88	14.08	50.01	62.25	.0000	.4531	.1241	.0295	.0295	.9705	.0000	.0000	.7728	.6341	.4510	.4222	.6549
30	-2.51	1.15	10.16	42.99	51.91	.0000	.3927	.0586	.0154	.0154	.9864	.0000	.0000	.8743	.6261	.4836	.4785	.7084
50	-6.40	-1.76	6.71	35.63	44.00	.0000	.3510	.0341	.0101	.0101	.9923	.0000	.0000	.9167	.6132	.4967	.5535	.7604
70	-8.87	-3.22	7.52	31.30	42.02	.0000	.3255	.0308	.0101	.0101	.9933	.0000	.0000	.9079	.5996	.5014	.6147	.8096
85	-9.07	-2.68	10.11	31.33	44.15	.0000	.3292	.0436	.0155	.0155	.9909	.0000	.0000	.8489	.5884	.4990	.6292	.8387
90	-8.14	-1.57	10.49	33.03	45.15	.0000	.3734	.1020	.0371	.0371	.9795	.0000	.0000	.7114	.5746	.4699	.6139	.8295
95	-7.47	-.72	9.77	35.78	46.23	.0000	.4289	.1548	.0577	.0577	.9709	.0000	.0000	.6308	.5529	.4311	.5991	.8232

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5927.	142.30	1.0807	1.2721	88.35	88.47

Table XXI(a) Performance with Hub Radial Distortion, Nominal Stator, Treated Casing

80% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B*-1 DEGREE	B*-2 DEGREE	V*-1 FT/SEC	V*-2 FT/SEC	VO*-1 FT/SEC	VO*-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.838	16.065	822.1	681.8	822.1	76.0	.0	876.8	.00	85.46	87.82	-84.89	408.1	177.8	-342.4	140.6	342.4	416.6
10	14.306	16.853	235.0	585.9	235.0	190.6	.0	663.6	.00	71.02	57.56	-31.96	438.4	224.7	-370.1	117.9	370.1	435.9
15	15.341	17.636	243.7	600.6	243.7	257.0	.0	542.2	.00	64.67	58.45	-18.85	446.1	271.9	-397.4	86.0	397.4	456.2
30	18.427	19.988	273.6	628.3	273.6	366.7	.0	510.0	.00	54.29	60.18	.98	549.6	367.2	-476.7	-7.1	476.7	517.0
50	22.273	23.137	348.0	633.6	348.0	418.1	.0	476.0	.00	48.70	58.87	16.31	673.1	436.1	-576.1	-122.5	576.1	598.5
70	25.934	26.288	375.0	595.4	376.0	391.4	.0	448.7	.00	48.91	60.78	30.58	768.6	454.6	-670.9	-231.3	670.9	680.0
85	28.973	28.644	373.0	561.8	373.0	344.1	.0	446.3	.00	52.37	63.21	40.87	827.9	463.0	-739.1	-294.6	739.1	740.9
90	29.403	29.419	370.3	548.8	370.3	328.4	.0	442.0	.00	53.64	64.04	44.43	846.8	459.6	-760.6	-318.9	760.6	760.9
95	30.215	30.208	366.1	539.7	366.1	305.5	.0	436.4	.00	55.00	64.90	48.47	863.1	460.9	-781.6	-345.0	781.6	781.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	LOSS-P	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M*-1	M*-2
5	15.44	22.56	-2.32	121.91	70.54	.1462	.8883	1.0470	.0930	.0646	1.1791	.6354	.6267	.1111	.1953	.5147	.3483	.1574
10	16.19	23.10	-1.37	89.51	65.47	.1276	.7881	.7592	.1418	.1150	1.2012	.7018	.6939	.2834	.1984	.5189	.3642	.1990
15	16.03	22.71	-.68	77.31	62.63	.1287	.7055	.5194	.1142	.0848	1.2314	.7783	.7717	.4509	.2104	.5322	.3913	.2409
30	15.46	21.22	1.23	59.19	52.94	.0975	.5865	.1382	.0364	.0107	1.3012	.9259	.9231	.8183	.2379	.5667	.4811	.3254
50	9.95	14.89	11.28	42.55	38.75	.0310	.6662	.1022	.0291	.0203	1.3279	.9261	.9230	.8598	.3177	.5599	.6158	.3853
70	9.43	13.56	10.39	30.20	26.95	.0223	.6004	.1961	.0551	.0487	1.3120	.8301	.8234	.7480	.3413	.5226	.7053	.3990
85	9.78	13.40	10.39	22.64	19.60	.0235	.6403	.2703	.0713	.0650	1.3035	.7505	.7410	.6700	.3374	.4913	.7544	.3950
90	9.87	13.39	12.07	19.61	18.33	.0239	.6463	.2873	.0726	.0665	1.2989	.7287	.7185	.6529	.3348	.4775	.7688	.3964
95	9.80	13.13	14.26	16.43	17.54	.0251	.6482	.3000	.0717	.0656	1.2948	.7104	.6996	.6405	.3310	.4626	.7827	.4002

TO/TO INLET	PO/PO INLET	EFF-AD INLET	EFF-P INLET	WC(1/A) LBM/SEC SQFT
		%	%	
1.0951	1.3039	82.91	83.55	23.49

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B*-1 DEGREE	B*-2 DEGREE	V*-1 FT/SEC	V*-2 FT/SEC	VO*-1 FT/SEC	VO*-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.981	19.368	517.8	174.9	38.3	162.7	816.0	-66.3	86.02	-22.18	-80.87	74.00	71.3	590.2	51.7	-647.3	444.3	801.0
10	18.665	19.908	515.4	188.9	119.4	176.1	497.4	-68.2	76.59	-21.27	-14.57	73.22	123.7	609.3	14.5	-583.2	482.8	515.0
15	19.362	20.485	536.9	219.6	222.7	200.5	487.3	-70.1	65.53	-19.50	3.10	71.58	223.3	633.1	-13.6	-600.0	500.8	529.9
30	21.439	22.260	605.8	369.2	382.0	364.4	470.0	-57.5	50.91	-9.19	12.43	60.16	391.4	731.4	-84.6	-633.6	554.6	574.0
50	24.186	24.672	651.1	487.6	468.1	487.5	452.5	-3.9	44.04	-.47	20.26	52.79	499.2	806.2	-173.1	-642.1	625.6	630.2
70	26.938	27.186	633.1	490.6	469.9	490.6	438.0	1.3	43.41	.19	29.82	55.04	529.2	886.6	-201.8	-701.9	696.6	703.2
85	28.974	29.120	609.6	467.1	422.7	467.1	439.2	3.4	46.10	.42	36.88	58.08	524.6	883.5	-310.3	-749.9	749.9	753.3
90	29.643	29.759	597.9	451.4	407.3	451.3	437.7	3.7	47.06	.46	38.94	59.50	523.7	889.3	-329.1	-766.1	766.8	769.8
95	30.316	30.402	584.6	433.5	391.2	433.5	434.4	-1.7	48.00	-.23	41.80	61.19	524.8	899.5	-349.8	-788.2	784.2	786.4

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M*-1	M*-2
5	22.98	25.68	-5.75	108.20	69.28	.5614	.9034	.1151	.0237	-.0921	.9847	.0000	.0000	.8720	.4553	.1519	.1220	.5105
10	16.91	19.76	-5.14	97.86	65.64	.2547	.8800	.1749	.0375	-.0168	.9769	.0000	.0000	.7903	.4690	.1634	.1845	.5270
15	13.48	16.47	-3.86	85.02	62.37	.0591	.8467	.2760	.0621	.0489	.9607	.0000	.0000	.6766	.4843	.1839	.2275	.5477
30	7.47	10.97	2.34	60.10	51.95	.0046	.6158	.2912	.0755	.0743	.9483	.0000	.0000	.5040	.5287	.3211	.3306	.6361
50	3.89	8.29	7.73	44.51	44.08	.0061	.4558	.1690	.0498	.0480	.9659	.0000	.0000	.6815	.5728	.4259	.4279	.7041
70	4.54	9.99	9.24	43.26	42.05	.0158	.4493	.1190	.0392	.0339	.9773	.0000	.0000	.7675	.5611	.4273	.4647	.7459
85	6.59	12.84	11.48	45.68	44.11	.0435	.4671	.1445	.0513	.0359	.9745	.0000	.0000	.7049	.5365	.4045	.4600	.7651
90	6.76	13.28	11.87	46.60	45.15	.0535	.5087	.1669	.0607	.0413	.9717	.0000	.0000	.6562	.5249	.3900	.4580	.7683
95	6.63	13.35	11.37	48.23	46.24	.0636	.5363	.1910	.0712	.0475	.9690	.0000	.0000	.6144	.5112	.3738	.4577	.7756

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
5928.	104.19	1.0951	1.2654	73.19	74.17

Table XXI(b) Performance with Hub Radial Distortion, Nominal Stator, Treated Casing

Rotor

90% of Design Speed

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.236	14.065	267.2	647.0	257.2	87.2	.0	640.8	.00	82.23	56.34	-62.88	464.2	193.7	-386.5	171.6	386.5	469.1
10	14.304	16.853	272.0	652.9	272.0	214.6	.0	616.3	.00	70.81	56.90	-30.23	498.5	248.5	-417.8	124.2	417.8	492.1
15	15.361	17.635	282.5	669.8	282.5	287.2	.0	604.6	.00	64.61	57.77	-17.57	530.2	301.6	-448.6	89.6	448.6	515.0
30	18.427	19.988	317.2	703.2	317.2	406.9	.0	573.4	.00	54.45	59.52	1.36	624.6	407.4	-538.1	-10.3	538.1	683.7
50	22.278	23.137	401.8	714.0	401.8	477.3	.0	535.5	.00	48.89	58.30	18.81	764.5	492.8	-680.4	-140.1	680.4	678.4
70	25.934	26.288	433.8	671.9	433.8	443.1	.0	507.8	.00	48.87	60.18	30.39	872.8	413.7	-787.3	-259.9	787.3	767.9
85	28.873	28.641	432.1	634.4	432.1	388.9	.0	500.2	.00	52.46	62.62	40.33	937.7	310.2	-834.4	-330.2	834.4	836.4
90	29.403	29.417	429.2	622.3	429.2	367.1	.0	502.5	.00	53.45	63.44	44.16	960.0	311.8	-858.6	-356.6	858.6	859.0
95	30.215	30.208	424.9	606.0	424.9	346.8	.0	497.0	.00	55.10	64.29	48.00	979.3	318.2	-882.3	-385.1	882.3	882.1

% SPAN	INCS DEGREE	INCR DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	14.74	21.86	-26.22	11.29	10.62	.1307	.8991	1.0301	.0982	.0741	1.2256	.6308	.6201	.1409	.2265	.5711	.3969	.1710
10	15.53	22.45	.34	87.14	65.45	.1171	.7957	.7540	.1433	.1186	1.2544	.6968	.6870	.3044	.2295	.5764	.4138	.2194
15	15.40	22.09	8.97	75.34	62.62	.1188	.7141	.5254	.1163	.0891	1.2934	.7716	.7631	.4615	.2433	.5916	.4440	.2669
30	14.98	20.76	14.60	58.16	52.91	.0956	.5995	.1565	.0412	.0161	1.3871	.9162	.9122	.8050	.2739	.6211	.5436	.3598
50	9.41	14.37	11.47	41.78	38.72	.0378	.5673	.1056	.0301	.0193	1.4271	.9246	.9207	.8612	.3672	.6287	.6993	.4340
70	8.82	12.96	10.19	29.79	26.94	.0297	.6026	.2037	.0574	.0489	1.4068	.8270	.8185	.7495	.3965	.5884	.8031	.4485
85	9.18	12.81	10.16	22.29	19.62	.0318	.6444	.2817	.0746	.0661	1.3949	.7460	.7339	.6712	.3929	.5526	.8591	.4416
90	9.27	12.74	11.81	19.27	18.33	.0324	.6520	.3007	.0763	.0680	1.3891	.7234	.7104	.6534	.3897	.5372	.8755	.4419
95	9.18	12.62	13.79	16.29	17.54	.0339	.6537	.3131	.0755	.0673	1.3849	.7064	.6927	.6418	.3857	.5219	.8913	.4463

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1213	1.3951	82.36	83.17	26.54

Stator

% SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	575.9	178.1	37.9	165.5	573.9	-68.8	86.14	-21.70	-47.03	75.31	75.1	652.7	49.7	-631.4	524.2	565.6
10	18.665	19.908	570.9	194.7	121.8	181.7	553.2	-69.8	77.69	-21.12	-10.84	74.45	124.5	676.2	8.2	-651.2	545.1	581.3
15	19.362	20.485	595.0	229.6	242.8	211.3	541.8	-76.0	65.96	-19.82	5.24	72.61	244.0	706.6	-23.6	-674.2	565.4	598.2
30	21.439	22.268	676.5	405.5	423.0	396.4	527.6	-83.9	51.31	-12.19	13.03	61.70	434.4	835.1	-98.6	-734.2	626.1	650.3
50	24.186	24.672	734.4	540.0	529.6	540.9	508.8	-12.3	43.86	-1.29	20.41	53.17	568.4	918.8	-197.8	-732.7	706.3	720.5
70	26.928	27.186	719.2	554.4	524.7	556.4	491.9	-4.7	43.16	-.48	29.29	55.13	601.9	973.3	-294.4	-798.6	786.3	793.9
85	28.974	29.120	694.2	531.3	483.7	531.3	497.9	-2.5	45.83	-.27	35.75	58.07	596.1	1004.9	-348.2	-852.8	846.1	850.4
90	29.643	29.759	681.6	514.4	466.1	514.4	497.3	-1.9	46.86	-.21	38.32	59.93	594.2	1011.5	-368.3	-870.9	865.6	869.0
95	30.316	30.402	668.5	495.5	449.7	495.5	494.7	-5.7	47.73	-.66	40.98	60.99	595.7	1021.7	-390.6	-893.5	885.3	887.8

% SPAN	INCS DEGREE	INCR DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	23.87	26.58	-5.27	107.84	69.29	.5237	.9309	.1142	.0236	-.0849	.9817	.0000	.0000	.8759	.5029	.1527	.1261	.5596
10	17.24	20.09	-4.98	98.81	65.67	.2817	.9041	.1701	.0366	-.0237	.9732	.0000	.0000	.8016	.5176	.1669	.2017	.5797
15	13.92	16.90	-4.13	85.78	62.42	.0717	.8652	.2759	.0619	.0459	.9532	.0000	.0000	.6858	.5394	.1925	.2480	.6059
30	7.93	11.41	-.62	63.50	52.02	.0099	.6346	.3017	.0775	.0749	.9355	.0000	.0000	.5874	.5864	.3499	.3630	.7209
50	3.70	8.09	-6.86	45.19	44.03	.0106	.4896	.1730	.0510	.0479	.9574	.0000	.0000	.6862	.6441	.4764	.4826	.7944
70	4.24	9.69	8.62	43.64	42.05	.0222	.4525	.1210	.0398	.0325	.9715	.0000	.0000	.7763	.6349	.4811	.5266	.8417
85	6.25	12.54	10.79	46.10	44.12	.0505	.4900	.1439	.0511	.0332	.9685	.0000	.0000	.7174	.6077	.4561	.5202	.8626
90	6.54	13.06	11.20	47.07	45.15	.0609	.5114	.1658	.0602	.0381	.9651	.0000	.0000	.6702	.5948	.4403	.5166	.8658
95	6.37	13.09	10.94	48.39	46.25	.0699	.5375	.1910	.0712	.0452	.9612	.0000	.0000	.6251	.5805	.4230	.5140	.8722

NCORR INLET RPM	WCORR/ INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
6693.	118.55	1.1213	1.3445	72.84	74.00

Table XXI(c) Performance with Hub Radial Distortion, Nominal Stator, Treated Casing

Rotor

95% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	428.0	937.6	428.0	517.8	.0	781.6	.00	56.47	43.48	-29.08	590.2	593.1	-406.2	288.5	406.2	493.1
10	14.306	16.853	445.7	907.4	445.7	528.2	.0	737.6	.00	54.38	44.55	-22.60	625.7	573.2	-439.1	220.3	439.1	517.3
15	15.361	17.635	459.0	882.6	459.0	534.8	.0	702.0	-.00	52.69	45.75	-16.69	658.1	559.1	-471.5	160.7	471.5	541.3
30	18.427	19.988	500.2	827.3	500.2	568.7	.0	600.4	.00	46.53	48.51	1.26	755.1	570.5	-565.6	-13.1	565.6	613.5
50	22.273	23.137	613.6	778.9	613.6	600.7	.0	495.4	.00	39.50	48.08	19.58	918.6	639.0	-683.7	-214.8	683.7	710.2
70	25.934	26.288	660.3	734.9	660.3	607.9	.0	412.8	.00	34.18	50.31	32.94	1034.3	724.7	-796.0	-394.1	796.0	806.9
85	28.573	28.641	661.0	703.3	661.0	572.3	.0	408.8	.00	35.54	52.99	39.42	1098.3	740.8	-877.0	-470.4	877.0	879.1
90	29.403	29.417	657.3	680.8	657.3	537.6	.0	417.6	.00	37.84	53.93	42.08	1116.5	724.3	-902.5	-485.3	902.5	902.9
95	30.215	30.208	650.4	653.2	650.4	498.9	.0	421.7	.00	40.20	54.96	45.38	1132.8	710.3	-927.4	-505.6	927.4	927.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	2.37	9.27	8.02	72.57	71.37	.0043	.2995	.0683	.0125	.0117	1.4857	.9697	.9680	.7240	.3906	.8470	.5398	.5358
10	2.71	9.25	8.41	67.15	66.29	.0061	.3667	.0220	.0045	.0033	1.4910	.9881	.9874	.9456	.4092	.8166	.5762	.5158
15	3.20	9.42	9.96	62.44	63.05	.0088	.4175	-.0151	-.0034	-.0053	1.4997	1.0063	1.0067	1.0271	.4204	.7916	.6068	.5015
30	2.54	8.12	14.56	47.25	53.15	.0137	.4633	-.0940	-.0249	-.0285	1.5139	1.0612	1.0648	1.1409	.4697	.7378	.7087	.5088
50	-.99	3.90	14.70	28.50	38.94	.0067	.4675	.0202	.0057	.0038	1.4419	.9779	.9767	.9705	.5773	.6922	.8661	.5678
70	-.99	3.16	12.71	17.38	26.91	.0062	.4305	.0570	.0156	.0139	1.3898	.9257	.9222	.9185	.6153	.6515	.9692	.6425
85	-.42	3.21	9.24	13.57	19.60	.0085	.4549	.1381	.0370	.0348	1.3664	.8168	.8085	.8148	.6134	.6188	1.0239	.6518
90	-.22	3.25	9.73	11.85	18.34	.0095	.4836	.1920	.0504	.0479	1.3489	.7483	.7374	.7551	.6093	.5959	1.0388	.6341
95	-.14	3.20	11.17	9.58	17.53	.0113	.5071	.2353	.0596	.0567	1.3322	.6930	.6803	.7113	.6027	.5691	1.0520	.6188

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1157	1.4208	90.82	91.26	38.03

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	864.2	568.7	507.3	567.9	699.5	-28.8	54.04	-2.90	-16.32	47.66	529.1	843.2	148.5	-623.3	551.0	594.5
10	18.665	19.908	858.1	571.0	540.9	570.7	665.8	-18.7	50.91	-1.88	-9.80	47.82	549.5	849.9	92.9	-629.8	572.9	611.1
15	19.362	20.465	854.6	592.1	567.0	591.9	639.3	-16.2	48.43	-1.57	-4.57	47.46	569.2	875.4	44.9	-645.0	594.3	628.8
30	21.439	22.268	848.2	642.9	637.7	642.7	558.8	-17.2	41.22	-1.53	8.77	47.47	646.1	950.8	-99.2	-700.7	658.1	683.5
50	24.186	24.672	835.9	669.0	669.0	668.8	473.0	-17.2	34.47	-1.47	21.31	49.19	740.2	1023.3	-269.4	-774.5	742.4	757.3
70	26.928	27.186	806.7	661.9	699.1	661.6	402.6	-19.2	29.93	-1.66	31.23	52.22	817.7	1080.0	-424.0	-853.6	826.5	834.5
85	28.974	29.120	780.0	639.7	666.9	639.6	404.4	-13.2	31.23	-1.18	36.02	54.81	824.6	1109.9	-484.9	-907.0	889.4	893.8
90	29.643	29.759	760.6	600.9	637.8	600.8	414.5	-10.3	33.02	-.99	37.84	56.96	807.6	1102.1	-495.4	-923.8	909.9	913.4
95	30.316	30.402	737.5	561.0	606.1	560.8	420.1	-14.9	34.72	-1.52	40.10	59.39	792.4	1101.5	-510.5	-948.1	930.5	933.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P PROFILE	PO2/ PO1	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2	
5	-1.34	1.18	12.95	56.94	68.86	.0016	.5219	.1600	.0354	.0350	.9478	.0000	.0000	.7655	.7708	.4920	.4738	.7295
10	-1.43	1.26	13.95	52.79	65.48	.0009	.5118	.1693	.0388	.0386	.9454	.0000	.0000	.7482	.7662	.4944	.4934	.7359
15	-1.29	1.63	13.82	50.00	62.24	.0008	.4844	.1435	.0341	.0339	.9540	.0000	.0000	.7708	.7632	.5137	.5106	.7596
30	-3.00	.65	9.88	42.75	51.91	.0002	.4168	.0693	.0182	.0181	.9780	.0000	.0000	.8699	.7583	.5616	.5818	.8305
50	-6.13	-1.50	6.59	35.94	43.97	.0001	.3711	.0307	.0090	.0090	.9905	.0000	.0000	.9330	.7480	.5873	.6650	.8983
70	-8.71	-3.06	7.38	31.59	42.02	.0000	.3508	.0272	.0090	.0090	.9920	.0000	.0000	.9312	.7210	.5823	.7323	.9501
85	-8.05	-1.65	10.00	32.41	44.14	.0001	.3696	.0487	.0173	.0173	.9866	.0000	.0000	.8638	.6908	.5591	.7306	.9700
90	-7.24	-.67	10.42	34.01	45.15	.0006	.4129	.0993	.0361	.0359	.9741	.0000	.0000	.7674	.6702	.5219	.7121	.9572
95	-6.69	.07	10.09	36.24	46.23	.0016	.4588	.1379	.0514	.0508	.9661	.0000	.0000	.7141	.6478	.4846	.6968	.9516

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7035.	168.84	1.1157	1.3911	85.57	85.81

Table XXI(c) Performance with Hub Radial Distortion, Nominal Stator, Treated Casing

95% of Design Speed

Rotor

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.065	363.1	873.8	363.1	401.4	.0	776.1	.00	62.64	48.24	-34.99	545.4	491.3	-407.0	282.0	407.0	494.0
10	14.306	16.653	376.8	845.5	378.8	429.1	.0	727.9	.00	59.45	49.25	-26.02	580.6	479.6	-439.9	209.7	439.9	518.3
15	15.361	17.635	390.9	824.1	390.9	451.4	.0	689.3	.00	56.77	50.37	-18.03	613.2	475.7	-472.4	147.0	472.4	542.3
30	18.427	19.988	424.7	774.8	424.7	481.0	.0	607.2	.00	51.59	53.15	.86	708.1	482.9	-566.7	-7.5	566.7	614.7
50	22.273	23.137	522.6	719.8	522.6	505.0	.0	512.6	.00	45.40	52.65	21.34	861.6	544.2	-684.9	-198.9	684.9	711.5
70	25.934	26.288	571.0	689.4	571.0	520.6	.0	451.9	.00	40.95	54.39	34.37	980.9	631.3	-797.5	-356.5	797.5	808.4
85	28.573	28.641	574.4	678.5	574.4	499.0	.0	459.7	.00	42.65	56.82	40.16	1049.8	653.0	-878.7	-421.0	878.7	880.8
90	29.403	29.417	572.1	667.3	572.1	479.1	.0	464.5	.00	44.12	57.68	42.57	1070.0	650.6	-904.2	-440.1	904.2	904.6
95	30.215	30.208	566.7	647.9	566.7	455.5	.0	460.7	.00	45.33	58.62	45.79	1088.3	653.2	-929.2	-468.2	929.2	929.0

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	7.09	14.01	2.43	83.23	71.67	.0213	.4260	.1567	.0269	.0232	1.4655	.9411	.9379	.6920	.3291	.7824	.4950	.4399
10	7.40	13.97	5.06	75.28	66.35	.0242	.4742	.0718	.0143	.0095	1.4730	.9687	.9670	.8829	.3447	.7549	.5292	.4282
15	7.77	14.02	8.60	68.39	63.01	.0287	.5055	.0028	.0006	-.0057	1.4851	.9974	.9973	.9945	.3596	.7340	.5605	.4237
30	7.26	12.85	14.15	52.30	53.15	.0349	.5541	-.0677	-.0179	-.0272	1.5083	1.0386	1.0409	1.0851	.3947	.6859	.6578	.4275
50	3.61	8.51	16.51	31.31	38.99	.0170	.5481	.0349	.0097	.0049	1.4547	.9683	.9666	.9560	.4860	.6340	.8023	.4794
70	3.04	7.21	14.11	20.02	26.88	.0138	.5078	.0748	.0201	.0164	1.4282	.9185	.9143	.9039	.5269	.6052	.9084	.5541
85	3.38	7.03	10.06	16.67	19.69	.0161	.5303	.1430	.0380	.0337	1.4339	.8424	.8342	.8233	.5284	.5913	.9681	.5691
90	3.51	6.99	10.21	15.10	18.33	.0168	.5456	.1746	.0455	.0411	1.4303	.8078	.7979	.7893	.5260	.5796	.9854	.5651
95	3.53	6.88	11.59	12.83	17.54	.0183	.5523	.1962	.0493	.0447	1.4224	.7818	.7708	.7670	.5208	.5610	1.0012	.5656

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1225	1.4507	91.43	91.86	33.98

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	793.7	464.8	383.6	456.6	694.5	-87.1	61.07	-10.80	-20.40	56.23	410.3	821.3	142.5	-682.7	552.0	595.6
10	18.665	19.908	784.2	451.9	425.8	446.7	657.6	-67.8	57.07	-8.60	-11.33	56.70	435.6	813.6	83.6	-680.0	574.0	612.2
15	19.362	20.485	780.0	462.8	462.4	460.5	627.8	-42.7	53.62	-5.36	-4.09	55.61	464.3	815.3	32.4	-672.7	595.4	630.0
30	21.439	22.268	773.1	529.8	526.4	529.7	565.8	3.7	47.06	.39	9.96	52.13	535.5	862.8	-93.4	-681.0	659.3	684.8
50	24.186	24.672	754.2	562.7	573.0	562.7	490.0	-2.0	40.53	-.20	23.79	53.50	627.4	946.2	-253.7	-760.7	743.8	758.7
70	26.928	27.186	743.4	581.6	598.2	581.5	441.2	-13.4	36.41	-1.32	32.87	55.60	712.6	1029.4	-386.9	-849.5	828.1	836.0
85	28.974	29.120	740.3	587.9	584.3	587.9	454.6	-8.8	37.88	-.85	36.75	56.97	729.3	1078.6	-436.4	-904.3	891.0	895.5
90	29.643	29.759	731.8	566.3	568.4	566.3	461.0	-6.6	39.05	-.67	38.41	58.44	725.3	1081.9	-450.6	-921.8	911.6	915.1
95	30.316	30.402	716.2	534.8	549.7	534.5	459.0	-18.6	39.86	-1.99	40.72	60.73	725.4	1093.1	-473.3	-953.5	932.3	934.9

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	5.69	8.22	5.07	71.87	68.87	.0150	.6259	.1652	.0359	.0327	.9536	.0000	.0000	.7839	.7000	.3991	.3638	.7052
10	4.48	7.18	7.17	65.67	65.49	.0085	.6301	.2085	.0473	.0454	.9425	.0000	.0000	.7313	.6938	.3881	.3896	.6987
15	3.87	6.76	10.02	58.98	62.23	.0056	.6055	.2169	.0513	.0499	.9407	.0000	.0000	.7079	.6907	.3979	.4123	.7009
30	2.96	6.55	11.77	46.67	51.90	.0038	.5013	.1458	.0382	.0372	.9608	.0000	.0000	.7622	.6847	.4577	.4724	.7455
50	.10	4.66	8.05	40.72	44.19	.0030	.4443	.0832	.0245	.0237	.9785	.0000	.0000	.8363	.6675	.4881	.5516	.8208
70	-2.15	3.44	7.70	37.73	42.01	.0019	.4178	.0606	.0199	.0193	.9848	.0000	.0000	.8686	.6567	.5053	.6271	.8943
85	-1.53	4.84	10.26	38.74	44.14	.0076	.4276	.0774	.0275	.0248	.9809	.0000	.0000	.8243	.6497	.5081	.6398	.9320
90	-1.26	5.29	10.73	39.72	45.15	.0110	.4583	.1193	.0434	.0394	.9713	.0000	.0000	.7425	.6401	.4874	.6344	.9310
95	-1.51	5.23	9.62	41.86	46.24	.0132	.5015	.1625	.0605	.0556	.9624	.0000	.0000	.6764	.6245	.4585	.6325	.9372

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7048.	150.68	1.1225	1.4096	84.24	84.81

Table XXI(c) Performance with Hub Radial Distortion, Nominal Stator, Treated Casing

Rotor

95% of Design Speed

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	13.235	16.068	273.8	673.9	273.6	74.9	.0	669.1	.00	83.68	56.05	-66.40	489.7	193.8	-406.2	176.0	906.2	493.1
10	14.304	16.853	288.4	684.8	288.4	214.8	.0	645.7	.00	71.67	66.87	-31.20	525.4	280.3	-439.1	128.4	439.1	817.9
15	15.361	17.635	299.1	699.0	299.1	291.1	.0	635.9	.00	65.39	57.58	-17.98	558.4	306.1	-471.5	94.1	471.5	541.3
30	18.427	19.988	335.4	736.2	335.4	421.7	.0	603.4	.00	55.05	59.36	1.33	667.6	422.0	-565.6	-10.1	566.6	613.6
50	22.273	23.137	424.4	781.8	424.4	496.6	.0	644.6	.00	48.68	58.17	16.34	804.4	517.4	-683.6	-145.6	683.6	710.1
70	26.134	26.288	457.4	712.1	457.4	465.5	.0	638.8	.00	49.17	60.10	29.93	918.1	537.2	-796.0	-268.0	796.0	806.9
85	28.573	28.641	488.4	671.9	465.4	403.2	.0	637.8	.00	53.18	62.55	40.27	988.2	528.5	-877.0	-341.4	877.0	879.1
90	29.403	29.412	462.1	653.8	462.1	377.9	.0	633.5	.00	54.69	63.39	44.35	1009.4	528.5	-902.5	-369.4	902.5	902.9
95	30.215	30.208	447.3	635.1	447.3	353.3	.0	627.8	.00	56.20	64.25	48.51	1029.7	533.2	-927.4	-399.4	927.4	927.2

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	14.36	21.48	-29.40	122.45	70.92	.1258	.9174	1.0271	.0859	.0624	1.2471	.6268	.6150	.1567	.2414	.5938	.4189	.1707
10	15.24	22.17	-.59	87.87	65.44	.1154	.8157	.7566	.1422	.1178	1.2806	.6938	.6830	.3189	.2431	.5996	.4338	.2205
15	15.19	21.93	8.59	78.56	62.61	.1184	.7338	.5342	.1179	.0907	1.3249	.7675	.7580	.4695	.2571	.6162	.4495	.2699
30	16.03	20.84	14.56	58.03	52.88	.0976	.6098	.1591	.0419	.0163	1.4330	.9153	.9109	.8078	.2871	.6491	.5679	.3720
50	9.31	14.29	11.29	41.83	38.72	.0414	.5693	.0983	.0280	.0162	1.4837	.9308	.9269	.8734	.3878	.6608	.7388	.4648
70	8.76	12.89	9.73	30.19	28.94	.0342	.6078	.2018	.0871	.0473	1.4432	.8322	.8330	.7879	.4188	.6200	.8464	.4677
85	9.13	12.74	10.09	22.28	19.60	.0368	.6543	.2871	.0761	.0662	1.4463	.7464	.7330	.6745	.4141	.5793	.9055	.4556
90	9.23	12.69	11.99	19.04	18.33	.0376	.6635	.3080	.0779	.0683	1.4386	.7224	.7080	.6555	.4110	.5619	.9225	.4542
95	9.14	12.48	14.30	15.74	17.84	.0394	.6668	.3226	.0770	.0675	1.4326	.7037	.6885	.6427	.4067	.5443	.9389	.4570

TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %	WC1/A1 LBM/SEC SQFT
1.1340	1.4474	82.69	83.56	27.99

Stator

%SPAN	DIA-1 IN	DIA-2 IN	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	V0-1 FT/SEC	V0-2 FT/SEC	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	V'-1 FT/SEC	V'-2 FT/SEC	V0'-1 FT/SEC	V0'-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC
5	17.951	19.368	600.7	144.2	29.6	136.4	599.4	-46.6	87.0	-18.86	-47.11	77.99	71.3	688.4	48.4	-641.1	851.0	894.6
10	18.668	19.908	588.3	164.8	89.3	146.6	577.6	-80.0	81.30	-18.88	-9.16	77.62	90.7	677.2	4.6	-661.0	872.9	611.0
15	19.362	20.485	614.3	217.7	236.2	208.3	566.1	-62.9	67.42	-17.13	6.64	73.41	237.9	723.5	-28.2	-691.7	894.3	628.8
30	21.439	22.268	706.9	413.0	437.4	407.0	553.6	-49.7	51.72	-9.82	13.35	61.66	449.8	864.6	-104.4	-753.2	658.0	683.5
50	24.186	24.672	773.8	676.5	668.4	676.3	536.6	-17.6	43.81	-1.75	20.27	53.36	698.6	965.6	-206.8	-774.8	742.3	767.3
70	26.928	27.184	761.6	686.9	655.2	686.7	521.1	-18.7	43.18	-1.63	28.84	58.38	633.9	1033.0	-305.4	-850.1	826.5	834.4
85	28.974	29.120	733.2	556.6	508.4	556.5	528.2	-12.7	46.10	-1.31	35.39	58.45	623.8	1063.8	-361.1	-906.5	889.3	893.8
90	29.643	29.759	718.9	538.2	488.2	538.0	527.7	-12.2	47.23	-1.29	38.05	59.83	620.0	1070.6	-382.1	-925.6	909.8	913.4
95	30.316	30.402	703.7	518.0	468.4	517.8	525.1	-16.4	48.27	-1.81	40.87	61.39	619.5	1081.5	-405.4	-949.5	930.5	933.1

%SPAN	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	CAMBER DEGREE	OMEGA-B SHOCK	D-FAC	OMEGA-B	LOSS-P TOTAL	LOSS-P PROFILE	P02/ P01	EFF-P TOTAL	EFF-AD TOTAL	EFF-P STATIC	M-1	M-2	M'-1	M'-2
5	27.80	30.50	-2.43	105.95	69.29	.5535	.9917	.1229	.0259	-.0910	.9789	.0000	.0000	.8721	.5162	.1230	.0940	.5590
10	18.88	21.72	-2.61	100.19	65.76	.4105	.9763	.1876	.0410	.0487	.9690	.0000	.0000	.7960	.5313	.1321	.1920	.5775
15	15.82	18.79	-1.43	84.55	62.43	.0955	.8848	.2610	.0595	.0379	.9634	.0000	.0000	.7063	.5490	.1858	.2378	.6176
30	8.52	12.00	1.76	61.54	52.02	.0136	.6434	.3173	.0821	.0786	.9273	.0000	.0000	.5834	.6085	.3548	.3717	.7357
50	3.59	7.97	6.32	45.56	43.96	.0131	.4637	.1794	.0529	.0490	.9519	.0000	.0000	.6829	.6779	.4987	.5081	.8352
70	-4.21	-9.65	-7.57	-44.71	-42.05	.0264	.4600	.1274	.0419	.0332	.9671	.0000	.0000	.7730	.6710	.5057	.5543	.8900
85	6.47	12.77	9.75	47.41	44.12	.0576	.5022	.1521	.0540	.0336	.9637	.0000	.0000	.7119	.6404	.4755	.5433	.9087
90	-6.89	-13.40	-10.11	-48.63	-45.15	.0695	.5242	.1720	.0626	.0373	.9605	.0000	.0000	.6692	.6257	.4582	.5377	.9116
95	6.89	13.61	9.79	50.08	46.25	.0806	.5503	.1941	.0723	.0423	.9572	.0000	.0000	.6298	.6090	.4398	.5347	.9182

NCORR INLET RPM	WCORR INLET LBM/SEC	TO/TO INLET	PO/PO INLET	EFF-AD INLET %	EFF-P INLET %
7034.	124.18	1.1340	1.3885	72.94	74.24

APPENDIX I

FLOW DISTRIBUTION AND OVERALL PERFORMANCE CIRCUMFERENTIAL DISTORTION

Table XXII	Rotor Inlet, Nominal Stator, Solid Casing
Table XXIII	Rotor Inlet, 10° Closed Stator, Solid Casing
Table XXIV	Rotor Inlet, Nominal Stator, Treated Casing
Table XXV	Stator Discharge, Nominal Stator, Solid Casing
Table XXVI	Stator Discharge, 10° Closed Stator, Solid Casing
Table XXVII	Stator Discharge, Nominal Stator, Treated Casing
Table XXVIII	Stage Overall Performance

Table XXII Flow Distributions at Rotor Inlet for Circumferential Distortion, Nominal Stator, Solid Casing

Disk Probe Station 4 80% Speed $W\sqrt{\theta}/\delta$ = 147.38 lb/sec

Circumferential Position % Span	20° P_4/P_o	20° P_4/P_o	20° $90-\beta_4$	20° Vm	50° P_4/P_o	50° P_4/P_o	50° $90-\beta_4$	50° Vm	80° P_4/P_o	80° P_4/P_o	80° $90-\beta_4$	80° Vm	110° P_4/P_o	110° P_4/P_o	110° $90-\beta_4$	110° Vm
5 (hub)	.966	.883	95.0	396	.972	.871	108.5	417	.935	.851	101.7	398	.899	.841	91.9	383
10	.978	.877	94.5	436	.966	.866	105.4	423	.925	.846	99.0	392	.899	.833	92.6	367
15	.982	.872	94.0	454	.961	.862	103.6	423	.915	.840	98.5	385	.896	.827	92.6	376
30	.980	.858	91.6	481	.982	.852	99.9	491	.897	.827	97.1	376	.895	.814	92.3	409
50	.979	.844	91.4	509	.978	.840	98.4	511	.896	.819	95.8	395	.893	.804	91.5	430
70	.978	.838	90.5	519	.977	.835	97.7	518	.898	.815	94.4	411	.891	.799	91.5	436
85	.974	.841	88.3	506	.976	.837	97.4	512	.893	.816	93.5	398	.891	.801	91.5	432
90	.971	.840	88.5	503	.974	.838	97.5	506	.893	.817	93.5	395	.891	.802	92.1	429
95 (tip)	.964	.846	85.9	476	.970	.843	95.5	492	.893	.820	93.5	385	.891	.807	89.0	407
MR	.977	.851	91.3	490	.976	.845	99.7	493	.903	.825	96.3	396	.893	.810	91.7	415
	140°				170°				200°				230°			
5 (hub)	.953	.852	74.4	425	.975	.870	72.2	426	.961	.872	82.3	409	.974	.878	80.0	422
10	.955	.846	76.0	447	.981	.864	74.7	454	.975	.864	82.7	456	.975	.870	82.6	444
15	.958	.842	77.4	465	.979	.861	75.7	459	.978	.860	83.9	472	.968	.865	82.7	439
30	.950	.828	79.8	482	.972	.847	78.9	483	.972	.844	84.9	493	.950	.852	84.0	492
50	.924	.817	81.6	460	.967	.835	80.6	498	.973	.831	85.9	522	.931	.837	84.8	523
70	.917	.814	82.6	452	.964	.830	81.5	504	.975	.825	86.1	539	.930	.832	85.4	532
85	.931	.816	81.2	476	.975	.833	83.1	519	.976	.827	87.5	537	.977	.833	85.4	524
90	.941	.817	80.3	491	.973	.833	83.1	516	.975	.827	88.0	535	.976	.834	85.4	517
95 (tip)	.950	.823	77.3	489	.968	.840	80.7	492	.973	.833	86.2	519	.966	.840	83.2	490
MR	.936	.825	80.0	464	.971	.842	79.5	490	.973	.838	85.6	510	.978	.845	84.2	502
	260°				290°				320°				350°			
5 (hub)	.965	.874	87.0	415	.982	.881	84.4	435	.982	.884	88.0	430	.977	.880	96.0	426
10	.967	.866	87.7	438	.982	.872	85.4	456	.982	.875	88.5	449	.982	.874	95.0	450
15	.970	.861	88.3	456	.982	.867	85.5	464	.981	.871	87.3	455	.980	.868	94.4	460
30	.981	.845	89.0	509	.983	.851	86.2	500	.982	.856	87.0	439	.979	.852	93.4	492
50	.981	.833	89.1	534	.979	.836	86.8	524	.981	.840	88.4	519	.980	.835	92.7	528
70	.980	.826	89.0	545	.978	.830	87.0	535	.979	.834	88.4	527	.979	.829	92.7	536
85	.977	.829	89.6	535	.975	.831	86.2	526	.977	.837	87.5	518	.977	.831	92.7	531
90	.976	.828	89.8	534	.973	.833	86.1	520	.974	.837	87.5	515	.975	.831	92.7	527
95 (tip)	.974	.834	88.4	520	.968	.839	83.6	496	.971	.844	85.2	494	.971	.837	91.2	509
MR	.977	.839	88.9	515	.979	.844	86.2	507	.980	.849	87.8	500	.979	.843	93.2	508

1) Test environment: P_o = 1989 psfa, T_o = 520.2°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55° -145°
5) $\beta'_4 = \tan^{-1}[\tan\beta_4/\cos\epsilon]$

Table XXII Flow Distributions at Rotor Inlet for Circumferential Distortion, Nominal Stator, Solid Casing

Disk Probe Station 4 80% Speed $W\sqrt{\theta}/\delta$ = 137.95 lb/sec

Circumferential Position % Span	20°				50°				80°				110°			
	P_4/Po	P_4/Po	$90-\beta^\circ_4$	Vm	P_4/Po	P_4/Po	$90-\beta^\circ_4$	Vm	P_4/Po	P_4/Po	$90-\beta^\circ_4$	Vm	P_4/Po	P_4/Po	$90-\beta^\circ_4$	Vm
5 (hub)					.977	.890	109.4	382	.947	.872	103.4	369	.911	.864	93.5	305
10					.973	.886	106.7	388	.939	.867	101.3	368	.911	.856	93.7	332
15					.966	.882	104.6	386	.930	.862	100.4	361	.909	.849	93.8	345
30					.985	.873	100.7	453	.914	.852	98.8	347	.908	.838	94.2	373
50					.981	.864	99.1	466	.911	.845	98.0	359	.907	.832	93.3	391
70					.981	.862	98.5	470	.910	.842	96.9	366	.906	.828	92.6	394
85					.980	.864	98.2	464	.908	.844	95.7	357	.905	.829	92.6	394
90					.978	.864	98.2	460	.907	.844	95.7	354	.905	.828	93.3	394
95 (tip)					.975	.869	96.0	448	.907	.847	95.7	345	.905	.833	91.0	381
MR					.980	.869	100.5	449	.917	.851	98.4	360	.907	.836	93.2	378
	140°				170°				200°				230°			
5 (hub)	.960	.872	74.2	393	.979	.888	71.7	392					.980	.895	79.2	392
10	.961	.867	76.2	412	.983	.882	74.3	419					.980	.889	81.1	410
15	.964	.863	77.4	430	.981	.878	75.5	426					.972	.884	81.3	403
30	.957	.850	79.9	450	.976	.865	79.2	452					.932	.869	84.0	461
50	.938	.840	81.8	435	.971	.855	80.2	463					.933	.859	83.9	483
70	.930	.836	82.3	429	.970	.851	81.5	472					.932	.853	85.6	495
85	.937	.837	82.4	440	.979	.853	83.2	487					.931	.855	84.9	488
90	.944	.837	80.7	453	.977	.853	83.2	483					.977	.854	84.9	482
95 (tip)	.957	.842	77.4	461	.971	.857	81.4	462					.972	.860	83.4	460
MR	.945	.846	80.2	434	.975	.862	79.5	457					.931	.865	83.6	467
	260°				290°				320°				350°			
5 (hub)	.970	.893	86.1	380	.986	.900	83.4	398	.986	.904	87.4	390	.931	.901	95.6	387
10	.972	.887	86.7	399	.985	.893	84.7	414	.985	.897	87.8	403	.934	.893	94.3	411
15	.974	.882	88.0	417	.985	.889	84.7	423	.984	.893	87.9	413	.983	.889	94.3	419
30	.983	.867	88.8	468	.985	.873	86.3	459	.984	.879	87.3	444	.982	.874	93.6	451
50	.983	.855	88.8	493	.983	.862	86.6	478	.984	.867	88.0	471	.983	.863	92.9	478
70	.983	.850	88.8	503	.982	.857	86.5	488	.982	.861	87.9	480	.982	.857	92.4	487
85	.981	.851	89.1	497	.979	.856	86.4	483	.979	.860	87.9	475	.981	.858	92.5	483
90	.980	.852	89.9	494	.977	.856	85.6	479	.977	.861	87.9	471	.980	.858	92.5	481
95 (tip)	.976	.857	88.1	477	.973	.862	84.0	457	.975	.866	85.9	454	.977	.861	90.9	469
MR	.980	.861	88.5	476	.983	.868	85.9	464	.983	.873	87.7	455	.982	.868	93.1	463

1) Test environment: P_o = 2012 psfa, T_o = 518.6°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55° -145°
5) $\beta^\circ_4 = \tan^{-1}[\tan\beta_4/\cos\epsilon]$

Table XXII Flow Distributions at Rotor Inlet for Circumferential Distortion, Nominal Stator, Solid Casing

Disk Probe Station 4 80% Speed $W\sqrt{\theta}/\delta$ = 128.53 lb/sec

Circumferential Position % Span	20° P_4/P_o	20° p_4/P_o	20° $90-\beta°_4$	20° Vm	50° P_4/P_o	50° p_4/P_o	50° $90-\beta°_4$	50° Vm	80° P_4/P_o	80° p_4/P_o	80° $90-\beta°_4$	80° Vm	110° P_4/P_o	110° p_4/P_o	110° $90-\beta°_4$	110° Vm
5 (hub)	.972	.915	98.2	322	.981	.903	110.2	358	.956	.887	104.7	351	.922	.883	95.7	273
10	.978	.909	98.0	355	.978	.899	109.5	367	.949	.882	102.7	352	.921	.875	94.6	302
15	.985	.908	96.3	377	.970	.896	105.9	361	.943	.879	101.4	346	.921	.869	95.0	317
30	.984	.897	94.6	403	.987	.887	101.3	423	.927	.870	101.1	328	.919	.856	94.8	352
50	.984	.887	93.8	425	.984	.882	100.5	430	.921	.862	100.2	334	.919	.850	94.5	369
70	.983	.886	92.6	428	.982	.882	99.7	429	.920	.862	98.9	334	-	-	-	-
85	.980	.890	90.3	413	.982	.885	99.2	420	.919	.866	97.6	322	.919	.849	94.0	373
90	.979	.890	90.3	408	.981	.887	99.2	414	.920	.868	97.6	316	.919	.850	94.1	369
95 (tip)	.974	.894	89.8	389	.978	.893	97.5	397	.920	.871	98.1	307	.918	.854	92.4	359
MR	.982	.894	93.7	406	.982	.887	101.6	413	.928	.869	100.4	335	-	-	-	-
	140° P_4/P_o	140° p_4/P_o	140° $90-\beta°_4$	140° Vm	170° P_4/P_o	170° p_4/P_o	170° $90-\beta°_4$	170° Vm	200° P_4/P_o	200° p_4/P_o	200° $90-\beta°_4$	200° Vm	230° P_4/P_o	230° p_4/P_o	230° $90-\beta°_4$	230° Vm
5 (hub)	.964	.887	74.7	370	.982	.902	71.7	367	.967	.902	81.4	347	.983	.908	73.0	366
10	.965	.882	75.9	386	.985	.896	74.4	392	.979	.897	81.1	384	.983	.903	80.7	383
15	.968	.878	77.4	403	.983	.894	75.4	396	.983	.894	82.5	406	.976	.899	81.3	375
30	.963	.866	80.1	423	.980	.883	78.9	421	.979	.879	84.3	431	.984	.887	83.0	424
50	.945	.857	81.8	408	.975	.873	80.4	434	.979	.868	84.9	457	.984	.876	83.4	445
70	.938	.854	82.5	403	.975	.862	81.7	447	.982	.864	85.6	471	.985	.873	84.0	457
85	.946	.855	82.0	418	.981	.870	83.0	456	.982	.865	87.0	471	.982	.873	84.2	452
90	.951	.854	81.3	430	.980	.870	83.0	453	.982	.866	87.2	468	.980	.874	84.2	446
95 (tip)	.960	.859	78.1	431	.975	.875	81.6	432	.979	.870	86.2	456	.976	.880	82.7	422
MR	.952	.863	80.3	409	.979	.878	79.5	429	.979	.874	84.8	445	.983	.882	82.9	432
	260° P_4/P_o	260° p_4/P_o	260° $90-\beta°_4$	260° Vm	290° P_4/P_o	290° p_4/P_o	290° $90-\beta°_4$	290° Vm	320° P_4/P_o	320° p_4/P_o	320° $90-\beta°_4$	320° Vm	350° P_4/P_o	350° p_4/P_o	350° $90-\beta°_4$	350° Vm
5 (hub)	.975	.907	84.2	354	.988	.916	82.6	362	.987	.917	87.5	360	.984	.915	95.9	355
10	.978	.903	85.7	374	.988	.911	83.6	376	.986	.913	87.9	369	.987	.909	94.7	378
15	.979	.900	86.7	384	.988	.908	83.7	383	.986	.909	88.0	378	.986	.907	94.9	381
30	.985	.887	88.0	428	-	-	-	-	.986	.899	87.9	403	.985	.895	93.9	409
50	.985	.874	88.0	458	.988	.896	85.5	413	.986	.889	87.9	425	.986	.885	93.2	435
70	.985	.871	88.2	464	.986	.885	85.9	434	.984	.884	87.9	433	.984	.879	92.5	445
85	.984	.872	88.7	458	.985	.880	85.9	442	.981	.886	87.9	424	.983	.882	92.8	436
90	.982	.874	89.1	452	.982	.881	85.5	436	.980	.885	87.7	421	.983	.884	92.8	430
95 (tip)	.981	.878	87.9	441	.977	.886	83.8	411	.977	.891	85.8	400	.979	.888	90.9	413
MR	.983	.881	87.7	439	-	-	-	-	.985	.894	87.8	412	.984	.890	93.4	420

1) Test environment: P_o = 2024 psfa, T_o = 518.2°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55° -145°
5) $\beta°_4 = \tan^{-1}[\tan\beta_4/\cos\epsilon]$

Table XXII Flow Distributions at Rotor Inlet for Circumferential Distortion, Nominal Stator, Solid Casing

Disk Probe Station 4 90% Speed $W\sqrt{\theta}/\delta$ = 165.67 lb/sec

Circumferential Position % Span	P_4/P_0	p_4/P_0	$90-\beta_4$	Vm	P_4/P_0	p_4/P_0	$90-\beta^\circ_4$	Vm	P_4/P_0	p_4/P_0	$90-\beta^\circ_4$	Vm	P_4/P_0	p_4/P_0	$90-\beta^\circ_4$	Vm
	20°				50°				80°				110°			
5 (hub)	.954	.846	94.7	458	.963	.831	107.2	486	.914	.806	99.8	46.2	.871	.795	88.5	400
10	.968	.838	94.6	502	.953	.821	104.3	494	.900	.798	97.4	456	.872	.786	91.3	427
15	.976	.832	93.7	525	.950	.815	102.2	505	.887	.789	97.1	449	.868	.776	90.4	444
30	.973	.810	92.3	563	.977	.800	98.9	581	.868	.773	96.6	448	.867	.759	90.3	482
50	.973	.794	92.3	592	.972	.786	97.8	600	.867	.761	94.5	475	.863	.745	89.7	507
70	.971	.789	91.1	600	.970	.781	97.4	608	.870	.757	93.5	493	.862	.743	90.2	510
85	.966	.792	88.9	587	.968	.784	97.1	598	.864	.758	92.8	471	.862	.743	90.3	503
90	.962	.792	88.9	580	.965	.786	97.1	592	.864	.760	92.8	472	.863	.745	90.4	506
95 (tip)	.955	.799	87.1	555	.959	.792	95.2	573	.863	.765	92.8	458	.863	.751	87.9	493
MR	.969	.804	91.8	569	.968	.794	99.0	579	.875	.770	95.2	471	.865	.754	90.0	488
	140°				170°				200°				230°			
5 (hub)	.941	.811	73.3	488	.968	.833	72.2	486	.948	.834	82.0	469	.968	.842	80.0	485
10	.942	.805	75.2	506	.975	.825	74.9	521	.966	.826	82.6	517	.967	.831	82.8	509
15	.948	.800	77.2	530	.973	.820	75.8	529	.972	.820	83.7	542	.959	.825	82.8	509
30	.941	.782	79.5	556	.965	.800	79.9	560	.964	.799	84.6	563	.973	.806	84.2	569
50	.912	.768	81.4	540	.956	.787	80.8	573	.966	.785	85.8	597	.976	.791	84.9	600
70	.904	.763	81.5	537	.953	.783	81.1	577	.968	.779	86.1	611	.974	.786	84.9	606
85	.924	.767	80.6	562	.966	.786	83.0	593	.970	.781	87.5	611	.970	.787	85.3	598
90	.929	.768	80.1	567	.965	.786	83.0	590	.969	.783	87.9	608	.967	.787	85.3	595
95 (tip)	.937	.774	77.5	560	.957	.792	80.7	566	.965	.789	85.8	589	.956	.794	83.0	563
MR	.925	.777	79.5	541	.962	.797	79.7	562	.966	.793	85.4	582	.971	.800	84.1	576
	260°				290°				320°				350°			
5 (hub)	.956	.837	87.0	481	.977	.847	85.2	498	.978	.849	88.2	495	.964	.840	96.1	486
10	.960	.829	87.5	505	.977	.835	86.7	523	.976	.838	88.8	515	.975	.831	94.5	526
15	.963	.822	88.5	524	.977	.828	86.7	536	.976	.831	88.5	528	.974	.824	94.3	537
30	.976	.802	89.1	584	.978	.807	87.4	578	.976	.809	88.6	571	.973	.803	93.3	575
50	.976	.787	89.0	610	.973	.789	88.0	602	.976	.792	89.0	601	.975	.787	92.0	603
70	.975	.781	89.1	618	.972	.783	87.9	611	.973	.786	88.6	608	.972	.779	92.6	617
85	.972	.783	89.6	610	.968	.785	87.1	601	.969	.788	88.1	598	.970	.790	92.5	612
90	.969	.784	90.1	605	.965	.787	86.3	593	.966	.788	88.1	593	.969	.791	92.6	603
95 (tip)	.965	.791	88.2	586	.959	.794	84.4	568	.961	.797	85.2	568	.963	.797	90.9	590
MR	.971	.796	88.9	588	.974	.800	87.2	582	.974	.803	88.5	578	.971	.795	93.2	587

1) Test environment: P_0 = 1959 psfa, T_0 = 528.4°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta^\circ_4 = \tan^{-1}[\tan\beta_4/\cos\epsilon]$

Table XXII Flow Distributions at Rotor Inlet for Circumferential Distortion, Nominal Stator, Solid Casing

Disk Probe Station 4 90% Speed $W\sqrt{\theta}/\delta$ = 154.67 lb/sec

Circumferential Position % Span	20° P_4/P_o	20° p_4/P_o	20° $90-\beta°_4$	20° Vm	50° P_4/P_o	50° p_4/P_o	50° $90-\beta°_4$	50° Vm	80° P_4/P_o	80° p_4/P_o	80° $90-\beta°_4$	80° Vm	110° P_4/P_o	110° p_4/P_o	110° $90-\beta°_4$	110° Vm
5 (hub)	.959	.874	96.3	400	.971	.856	108.7	444	.931	.836	102.1	425	.939	.824	93.6	361
10	.970	.867	96.3	443	.965	.851	106.1	450	.922	.828	100.8	427	.939	.814	93.1	392
15	.979	.863	94.7	467	.958	.848	104.6	447	.911	.821	99.4	420	.935	.806	93.2	404
30	.978	.845	93.4	502	.982	.834	100.4	524	.889	.807	98.4	407	.933	.789	93.1	443
50	.978	.832	92.6	530	.977	.821	99.0	543	.884	.797	98.3	423	.931	.779	92.6	465
70	.976	.827	91.5	537	.975	.816	98.4	550	.885	.793	96.1	437	.930	.774	91.8	475
85	.972	.829	90.0	526	.973	.819	98.2	540	.881	.796	95.2	421	.929	.774	92.1	472
90	.969	.830	90.0	518	.971	.821	98.2	533	.882	.798	95.2	417	.930	.776	93.1	469
95 (tip)	.963	.839	87.6	491	.965	.828	96.4	573	.881	.802	95.2	404	.929	.781	91.5	455
MR	.974	.840	92.6	508	.974	.828	100.3	523	.894	.805	97.9	423	.932	.785	92.6	450
	140° P_4/P_o	140° p_4/P_o	140° $90-\beta°_4$	140° Vm	170° P_4/P_o	170° p_4/P_o	170° $90-\beta°_4$	170° Vm	200° P_4/P_o	200° p_4/P_o	200° $90-\beta°_4$	200° Vm	230° P_4/P_o	230° p_4/P_o	230° $90-\beta°_4$	230° Vm
5 (hub)	.949	.837	74.7	452	.972	.855	72.1	450	.953	.857	92.2	423	.975	.865	78.4	448
10	.950	.830	76.0	471	.978	.848	74.6	481	.969	.848	91.7	476	.974	.856	81.2	470
15	.955	.824	77.2	494	.976	.844	75.6	488	.976	.843	93.0	501	.965	.851	81.4	463
30	.944	.807	79.9	516	.969	.825	79.6	520	.969	.823	84.3	529	.977	.832	83.6	526
50	.917	.793	81.7	499	.963	.811	80.8	540	.970	.808	85.4	562	.978	.815	84.3	561
70	.908	.788	82.5	494	.961	.805	81.3	548	.974	.805	85.9	574	.978	.810	84.5	569
85	.927	.791	81.6	521	.972	.808	83.3	562	.975	.807	87.5	573	.975	.811	84.6	563
90	.934	.791	80.7	531	.970	.808	83.3	560	.974	.806	87.5	573	.972	.811	84.6	553
95 (tip)	.943	.797	78.1	529	.964	.815	81.0	533	.971	.813	86.4	554	.963	.819	83.6	530
MR	.930	.802	80.2	502	.968	.820	79.7	529	.971	.817	85.2	545	.976	.824	83.4	537
	260° P_4/P_o	260° p_4/P_o	260° $90-\beta°_4$	260° Vm	290° P_4/P_o	290° p_4/P_o	290° $90-\beta°_4$	290° Vm	320° P_4/P_o	320° p_4/P_o	320° $90-\beta°_4$	320° Vm	350° P_4/P_o	350° p_4/P_o	350° $90-\beta°_4$	350° Vm
5 (hub)	.962	.861	85.6	439	.982	.871	83.4	454	.982	.879	97.2	440	.973	.871	96.1	438
10	.966	.852	86.0	466	.982	.864	84.6	471	.980	.869	97.7	459	.990	.962	94.2	473
15	.967	.846	87.0	483	.981	.859	84.6	481	.980	.863	97.7	471	.978	.956	94.1	480
30	.979	.827	88.2	541	.982	.838	86.3	525	.980	.845	97.7	503	.976	.833	93.1	515
50	.979	.812	88.1	570	.978	.820	86.9	553	.980	.827	88.1	542	.978	.821	92.7	550
70	.979	.807	88.3	579	.977	.813	86.8	564	.977	.820	88.0	552	.975	.813	92.7	561
85	.976	.808	88.5	572	.973	.813	85.9	556	.974	.821	87.6	544	.975	.816	92.7	556
90	.975	.809	89.2	567	.971	.815	85.9	551	.972	.822	87.4	539	.974	.817	92.6	552
95 (tip)	.971	.817	88.1	548	.965	.824	83.2	522	.966	.829	85.7	515	.969	.824	91.1	531
MR	.976	.820	87.9	548	.978	.830	86.0	534	.978	.836	87.8	522	.976	.829	93.1	531

1) *Test environment:* P_o = 1977 psfa, T = 526.4°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta°_4 = \tan^{-1}[\tan\beta_4/\cos\epsilon]$

Table XXII Flow Distributions at Rotor Inlet for Circumferential Distortion, Nominal Stator, Solid Casing

Disk Probe Station 4 90% Speed $W\sqrt{\theta}/\delta$ = 143.20 lb/sec

Circumferential Position % Span	20° P_4/Po	p_4/Po	$90-\beta_4$	Vm	50° P_4/Po	p_4/Po	$90-\beta_4$	Vm	80° P_4/Po	p_4/Po	$90-\beta_4$	Vm	110° P_4/Po	p_4/Po	$90-\beta_4$	Vm
5 (hub)	.964	.891	97.8	370	.976	.876	109.7	410	.946	.859	104.1	399	.901	.849	95.0	331
10	.971	.885	97.8	400	.974	.871	107.6	420	.939	.851	102.8	404	.903	.838	94.1	362
15	.980	.882	96.4	428	.964	.868	106.0	412	.930	.846	101.9	400	.901	.831	94.1	373
30	.981	.867	94.9	463	.984	.856	100.9	484	.909	.833	101.0	384	.898	.815	94.0	412
50	.980	.856	94.2	485	.980	.850	100.3	490	.901	.825	99.0	386	.898	.806	93.9	434
70	.978	.853	92.6	490	.978	.847	99.6	494	.901	.823	98.6	393	.897	.802	93.4	442
85	.976	.857	89.9	476	.977	.851	99.5	484	.899	.827	97.3	382	.897	.804	93.5	437
90	.972	.857	89.9	469	.977	.853	99.4	480	.899	.827	97.3	379	.898	.805	93.9	437
95 (tip)	.968	.862	89.9	450	.973	.858	97.9	464	.899	.831	97.3	369	.897	.810	92.8	421
MR	.977	.863	93.7	464	.978	.855	101.5	474	.911	.833	100.1	390	.898	.813	93.8	419
	140°				170°				200°				230°			
5 (hub)	.957	.957	74.8	423	.974	.873	71.3	415	.957	.874	80.4	395	.930	.886	77.6	411
10	.957	.957	75.2	443	.980	.867	73.7	446	.972	.867	80.6	441	.980	.878	79.6	432
15	.961	.961	76.8	461	.980	.863	74.8	454	.979	.862	81.9	467	.970	.873	80.1	424
30	.957	.957	79.7	489	.975	.849	78.7	481	.972	.845	83.8	490	.930	.856	82.6	451
50	.936	.936	81.8	480	.968	.836	79.9	498	.976	.832	84.8	525	.930	.845	82.6	505
70	.927	.927	82.2	474	.965	.829	81.1	508	.977	.824	85.2	543	.930	.839	83.4	517
85	.939	.939	82.3	490	.975	.833	82.7	520	.978	.826	86.5	540	.979	.842	83.5	510
90	.944	.944	81.7	498	.975	.833	82.7	518	.977	.827	86.8	537	.976	.841	83.6	507
95 (tip)	.950	.950	79.3	492	.971	.840	81.1	496	.973	.835	85.9	514	.970	.845	82.8	486
MR	.944	.944	80.3	476	.972	.843	79.1	489	.974	.838	84.4	510	.979	.852	82.2	459
	260°				290°				320°				350°			
5 (hub)	.970	.886	83.7	396	.985	.899	81.6	397	.984	.901	97.3	394	.976	.892	96.4	397
10	.972	.877	84.7	425	.985	.891	82.9	418	.983	.983	97.6	408	.983	.885	95.5	427
15	.973	.871	85.6	440	.984	.885	82.9	428	.984	.984	97.6	420	.981	.880	95.0	435
30	.980	.855	87.2	487	.984	.869	85.7	465	.983	.983	97.6	452	.980	.867	94.3	462
50	.982	.842	87.5	516	.981	.855	85.7	489	.983	.983	97.8	478	.981	.853	93.1	494
70	.981	.838	87.6	524	.980	.849	85.7	498	.981	.981	97.7	483	.980	.848	93.1	501
85	.980	.841	87.9	515	.977	.850	85.6	491	.978	.978	97.7	477	.979	.850	93.2	496
90	.978	.841	88.4	512	.975	.851	85.1	486	.975	.975	97.7	472	.978	.852	93.2	489
95 (tip)	.975	.846	87.5	496	.970	.856	83.1	464	.972	.972	97.7	455	.975	.859	91.8	471
MR	.979	.850	87.0	496	.981	.863	84.8	472	.982	.982	97.7	460	.980	.860	93.8	476

1) Test environment: P_o = 1993 psfa, T = 529.3°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference psoition is TDC looking aft
4) Screen position: 55°-145°
5) $\beta^\circ_4 = \tan^{-1}[\tan\beta_4/\cos\epsilon]$

Table XXII Flow Distributions at Rotor Inlet for Circumferential Distortion, Nominal Stator, Solid Casing

Disk Probe Station 4 95% Speed $W\sqrt{\theta}/\delta$ = 173.11 lb/sec

Circumferential Position % Span	20° P_4/P_o	20° p_4/P_o	20° $90-\beta^\circ_4$	20° Vm	50° P_4/P_o	50° p_4/P_o	50° $90-\beta^\circ_4$	50° Vm	80° P_4/P_o	80° p_4/P_o	80° $90-\beta^\circ_4$	80° Vm	110° P_4/P_o	110° p_4/P_o	110° $90-\beta^\circ_4$	110° Vm
5 (hub)	.947	.824	95.1	492	.960	.809	106.3	523	.903	.780	99.2	497	.856	.771	87.8	428
10	.963	.815	94.2	538	.948	.799	103.7	530	.887	.772	95.7	490	.857	.760	90.5	458
15	.971	.809	93.4	563	.946	.791	101.6	547	.872	.760	95.8	486	.854	.752	90.3	472
30	.970	.787	91.9	600	.975	.775	98.4	621	.851	.742	94.3	489	.852	.732	89.5	516
50	.970	.767	92.0	636	.968	.765	97.3	632	.850	.726	94.2	522	.850	.717	89.1	542
70	.967	.764	91.1	637	.967	.764	97.1	632	.854	.722	92.8	541	.847	.713	89.4	547
85	.961	.762	90.1	632	.963	.761	97.2	632	.847	.723	92.8	523	.848	.716	89.6	543
90	.957	.764	89.4	624	.961	.760	97.3	630	.846	.724	92.8	520	.848	.716	90.2	542
95 (tip)	.951	.775	87.2	594	.956	.771	95.5	607	.846	.732	91.5	501	.848	.723	87.2	527
MR	.965	.779	91.8	608	.965	.773	98.6	612	.859	.738	94.4	514	.850	.727	89.3	522
	140°				170°				200°				230°			
5 (hub)	.935	.791	73.0	516	.962	.813	72.6	517	.940	.813	82.0	499	.963	.823	90.7	516
10	.936	.783	75.1	537	.971	.804	74.6	550	.959	.804	82.1	548	.963	.812	82.7	541
15	.944	.778	76.9	563	.970	.798	76.3	564	.969	.798	83.0	574	.954	.804	82.8	542
30	.933	.761	79.2	584	.962	.781	79.2	591	.960	.778	84.6	600	.972	.786	83.9	601
50	.900	.744	80.8	567	.954	.763	80.6	612	.960	.761	85.2	631	.973	.769	84.6	634
70	.890	.739	81.3	561	.948	.759	81.5	613	.963	.761	86.3	636	.971	.767	85.6	635
85	.910	.743	79.9	583	.960	.763	83.0	623	.965	.763	87.5	636	.963	.765	85.6	635
90	.925	.746	79.3	598	.959	.764	83.0	621	.966	.763	88.0	637	.962	.765	85.6	627
95 (tip)	.932	.755	76.5	586	.955	.774	80.3	594	.961	.768	85.6	619	.954	.776	82.9	593
MR	.915	.755	79.1	568	.958	.774	79.7	596	.961	.773	85.3	611	.963	.780	84.3	603
	260°				290°				320°				350°			
5 (hub)	.948	.817	86.9	509	.973	.827	85.6	530	.975	.830	88.5	530	.962	.820	95.9	523
10	.953	.806	87.5	539	.973	.814	86.9	555	.974	.816	88.8	553	.973	.809	94.7	564
15	.956	.798	88.3	560	.973	.807	86.8	569	.973	.809	88.0	566	.970	.802	94.3	573
30	.973	.779	89.3	619	.976	.787	86.6	608	.973	.787	88.3	605	.970	.779	93.3	613
50	.972	.768	88.9	637	.970	.767	87.8	636	.973	.769	88.7	637	.971	.767	92.6	636
70	.972	.768	89.1	637	.970	.766	87.8	636	.969	.766	88.9	637	.969	.765	92.5	636
85	.967	.764	89.6	637	.965	.764	87.0	634	.965	.764	88.0	634	.967	.764	92.6	636
90	.964	.762	90.3	637	.961	.764	86.8	627	.963	.765	88.0	629	.964	.762	92.8	636
95 (tip)	.963	.769	88.2	623	.956	.775	84.5	599	.958	.776	86.2	603	.958	.766	90.9	621
MR	.967	.777	88.9	615	.970	.780	87.1	613	.971	.781	89.4	612	.968	.777	93.1	616

1) Test environment: P_o = 1951 psfa, T_o = 524.1°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta^\circ_4 = \tan^{-1}[\tan\beta_4/\cos\epsilon]$

Table XXII Flow Distributions at Rotor Inlet for Circumferential Distortion, Nominal Stator, Solid Casing

Disk Probe Station 4 95% Speed $W\sqrt{\theta}/\delta$ = 161.23 lb/sec

Circumferential Position % Span	20°				50°				80°				110°			
	P_4/Po	P_4/Po	$90-\beta_4$	Vm	P_4/Po	P_4/Po	$90-\beta_4$	Vm	P_4/Po	P_4/Po	$90-\beta_4$	Vm	P_4/Po	P_4/Po	$90-\beta_4$	Vm
5 (hub)	.954	.859	97.0	424	.968	.842	109.0	467	.924	.816	102.9	454	.878	.807	92.7	385
10	.966	.852	95.9	466	.960	.835	106.1	475	.913	.808	100.3	455	.878	.796	92.9	414
15	.976	.848	94.9	494	.951	.830	104.1	473	.901	.800	99.4	450	.874	.787	93.3	426
30	.974	.827	93.2	532	.978	.813	100.2	558	.877	.786	98.2	434	.871	.767	92.6	472
50	.975	.810	92.9	566	.972	.800	98.7	575	.872	.773	98.1	453	.869	.753	92.0	493
70	.973	.807	91.3	569	.971	.798	98.1	577	.872	.771	96.5	461	.867	.749	91.6	506
85	.967	.810	89.5	555	.969	.801	98.2	568	.867	.771	96.5	450	.868	.752	92.1	499
90	.962	.809	89.9	548	.966	.803	98.8	559	.866	.772	96.5	445	.868	.753	92.9	497
95 (tip)	.956	.820	88.4	517	.960	.811	97.2	538	.867	.779	96.5	430	.868	.758	91.0	484
MR	.971	.821	92.6	539	.970	.809	100.2	552	.882	.783	98.3	451	.870	.763	92.2	479
	140°				170°				200°				230°			
5 (hub)	.945	.820	73.9	478	.968	.838	72.5	479	.948	.840	81.9	457	.971	.849	79.1	477
10	.946	.814	76.1	496	.975	.829	75.0	514	.962	.832	81.3	497	.971	.839	81.6	500
15	.951	.805	77.5	525	.974	.822	76.3	527	.971	.825	82.6	523	.960	.832	82.2	495
30	.945	.787	79.9	554	.966	.805	79.3	553	.967	.803	84.0	564	.973	.813	83.0	554
50	.916	.771	81.5	541	.959	.790	81.0	573	.966	.788	85.0	592	.975	.795	84.1	591
70	.906	.764	82.2	538	.956	.782	82.1	583	.969	.781	85.5	603	.975	.790	85.1	602
85	.923	.767	81.5	559	.968	.788	83.2	592	.972	.786	86.9	605	.972	.792	85.1	593
90	.928	.768	80.8	565	.966	.787	83.2	591	.971	.785	87.3	605	.967	.793	84.8	585
95 (tip)	.937	.776	77.9	559	.960	.796	80.6	562	.967	.792	85.1	596	.961	.799	82.6	560
MR	.927	.780	80.0	539	.964	.799	79.9	561	.967	.797	84.8	576	.972	.806	83.6	567
	260°				290°				320°				350°			
5 (hub)	.961	.845	85.2	472	.981	.861	83.4	475	.80	.866	87.8	465	.971	.854	96.0	471
10	.966	.838	86.0	497	.980	.851	84.8	495	.978	.857	88.2	481	.978	.847	94.7	499
15	.966	.830	86.7	513	.980	.843	85.2	510	.978	.849	87.7	496	.975	.839	94.3	510
30	.976	.809	88.2	569	.980	.822	85.6	551	.978	.829	87.6	535	.974	.820	93.8	545
50	.976	.793	88.1	599	.976	.803	86.9	580	.978	.811	88.1	568	.975	.802	92.6	532
70	.977	.789	88.4	608	.974	.797	86.9	589	.975	.804	88.1	577	.973	.794	92.7	592
85	.973	.790	88.6	599	.971	.799	85.7	580	.969	.805	87.7	566	.971	.797	93.1	584
90	.971	.791	89.2	596	.968	.799	85.6	574	.963	.806	87.7	562	.969	.797	93.2	581
95 (tip)	.969	.798	87.3	579	.962	.806	83.8	551	.962	.813	86.2	539	.965	.805	92.2	561
MR	.973	.803	87.9	577	.976	.814	85.9	559	.976	.821	87.9	546	.973	.811	93.4	561

1) Test environment: P_o = 1974 psfa, T_o = 521°R
2) Vm calculation is based on standard-day inlet-lenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta°_4 = \tan^{-1}[\tan\beta_4/\cos\epsilon]$

Table XXII Flow Distributions at Rotor Inlet for Circumferential Distortion, Nominal Stator, Solid Casing

Disk Probe Station 4 95% Speed $W\sqrt{\theta}/\delta$ = 148.59 lb/sec

Circumferential Position % Span	20° P_4/Po	20° p_4/Po	20° $90-\beta°_4$	20° Vm	50° P_4/Po	50° p_4/Po	50° $90-\beta°_4$	50° Vm	80° P_4/Po	80° p_4/Po	80° $90-\beta°_4$	80° Vm	110° P_4/Po	110° p_4/Po	110° $90-\beta°_4$	110° Vm
5 (hub)	.961	.879	98.7	391	.975	.864	109.9	431	.941	.844	104.3	424	.895	.833	94.7	355
10	.970	.874	98.0	423	.972	.858	107.1	447	.931	.834	102.3	430	.894	.822	93.8	382
15	.979	.870	96.9	452	.962	.854	106.0	439	.922	.828	100.8	427	.892	.815	94.1	398
30	.979	.855	95.3	484	.982	.842	101.2	509	.899	.814	100.3	411	.888	.795	93.7	438
50	.978	.843	93.7	508	.978	.833	99.8	520	.892	.807	99.0	414	.888	.783	92.8	468
70	.976	.839	93.0	514	.975	.831	99.6	520	.892	.805	97.8	418	.888	.780	92.9	474
85	.972	.844	91.3	498	.973	.835	99.5	510	.888	.807	97.7	406	.888	.784	93.6	465
90	.968	.843	91.3	492	.971	.837	99.7	502	.889	.809	97.7	402	.889	.784	94.0	466
95 (tip)	.964	.851	89.7	467	.965	.843	98.8	479	.889	.813	98.0	391	.889	.791	92.5	451
MR	.975	.851	94.2	487	.975	.840	101.4	500	.902	.815	99.6	416	.889	.793	93.4	448
	140°				170°				200°				230°			
5 (hub)	.954	.841	73.9	450	.971	.860	71.4	438	.952	.860	80.1	416	.978	.874	77.1	431
10	.951	.834	75.1	464	.978	.852	74.2	471	.964	.855	80.9	453	.978	.866	99.8	455
15	.956	.829	76.9	485	.977	.848	75.2	480	.975	.851	81.6	482	.968	.860	80.3	448
30	.951	.812	79.7	516	.971	.831	79.2	513	.973	.830	83.2	523	.977	.842	82.2	505
50	.924	.797	81.4	503	.964	.817	80.4	530	.970	.813	84.0	550	.978	.828	83.1	535
70	.915	.795	82.6	492	.962	.813	81.0	535	.973	.811	84.7	561	.979	.824	83.6	543
85	.932	.797	81.3	517	.974	.815	83.0	552	.975	.813	86.0	561	.977	.827	83.6	534
90	.941	.799	80.8	527	.971	.815	83.0	547	.975	.814	86.6	558	.974	.826	83.6	531
95 (tip)	.949	.807	78.5	522	.966	.824	80.7	520	.972	.822	84.9	538	.966	.834	82.4	502
MR	.936	.807	80.0	500	.969	.826	79.3	518	.971	.823	83.9	533	.977	.837	322	513
	260°				290°				320°				350°			
5 (hub)	.967	.876	83.4	414	.984	.889	82.2	417	.82	.890	88.3	414	.973	.881	96.7	415
10	.970	.865	84.4	446	.985	.880	83.6	440	.980	.882	88.8	430	.981	.873	95.6	449
15	.970	.859	85.6	459	.983	.875	83.6	448	.981	.877	88.8	444	.980	.869	95.5	456
30	.978	.843	87.0	508	.982	.857	85.6	487	.980	.862	88.6	473	.978	.854	94.1	485
50	.979	.830	87.2	536	.979	.842	86.0	511	.980	.848	88.6	501	.980	.839	93.2	518
70	.979	.823	87.3	548	.978	.838	86.0	517	.978	.845	88.4	505	.978	.834	93.2	524
85	.978	.828	87.7	537	.975	.842	84.4	503	.976	.851	87.6	489	.976	.840	93.5	511
90	.976	.829	88.0	531	.973	.843	84.6	499	.974	.851	87.6	484	.974	.839	93.7	509
95 (tip)	.972	.834	87.0	515	.969	.848	83.4	479	.970	.858	85.8	462	.971	.847	92.4	488
MR	.976	.837	86.8	517	.80	.852	85.0	491	.979	.858	88.3	480	.977	.848	93.9	497

1) Test enviroment: P_o = 1991 psfa, T_o = 522.4°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta°_4 = \tan^{-1}[\tan\beta_4/\cos\epsilon]$

Table XXIII Flow Distributions at Rotor Inlet for Circumferential Distortion, 10 Degree Closed Stator, Solid Casing

Disk Probe Station 4 95% Speed $W\sqrt{\theta}/\delta$ = 161.15 lb/sec

Circumferential Position % Span	P_4/P_o	p_4/P_o	$90-\beta^\circ_4$	Vm	P_4/P_o	p_4/P_o	$90-\beta^\circ_4$	Vm	P_4/P_o	p_4/P_o	$90-\beta^\circ_4$	Vm	P_4/P_o	p_4/P_o	$90-\beta^\circ_4$	Vm
	20°				50°				80°				110°			
5 (hub)	.956	.853	95.5	445	.965	.841	106.9	469	.917	.815	99.9	447	.874	.806	87.3	378
10	.970	.846	95.0	487	.958	.834	104.0	477	.905	.807	97.4	443	.875	.798	90.2	401
15	.977	.840	93.8	511	.954	.828	102.1	486	.892	.800	96.4	434	.872	.790	90.0	418
30	.976	.819	92.4	552	.979	.810	98.1	568	.873	.785	95.5	430	.872	.773	89.6	460
50	.976	.800	92.3	585	.974	.795	97.0	589	.871	.771	95.1	460	.869	.761	89.3	482
70	.974	.795	91.0	592	.972	.790	96.5	595	.873	.768	93.3	473	.867	.757	89.6	488
85	.969	.797	89.4	582	.971	.795	96.5	585	.867	.768	93.3	460	.866	.756	89.6	486
90	.965	.797	89.4	576	.968	.795	96.5	580	.866	.769	93.3	456	.868	.758	90.6	485
95 (tip)	.959	.805	87.4	552	.963	.802	94.6	562	.866	.774	93.3	443	.868	.764	88.6	472
MR	.972	.811	91.9	560	.971	.804	98.3	566	.879	.781	95.2	454	.869	.768	89.4	465
	140°				170°				200°				230°			
5 (hub)	.945	.822	71.7	468	.970	.846	71.5	464	.952	.850	82.0	441	.966	.855	80.4	456
10	.943	.818	73.8	480	.976	.838	74.1	496	.965	.843	81.8	480	.969	.847	82.7	481
15	.949	.813	75.8	503	.975	.835	75.1	502	.973	.838	83.1	506	.961	.842	82.7	478
30	.938	.796	78.3	524	.967	.817	78.3	530	.968	.819	84.1	537	.976	.821	84.4	546
50	.905	.782	80.1	499	.958	.799	80.6	553	.968	.802	85.4	569	.978	.804	84.7	579
70	.895	.777	81.0	491	.957	.794	81.6	563	.970	.794	85.9	586	.976	.797	85.6	590
85	.914	.778	79.8	522	.970	.798	83.2	578	.972	.797	87.6	587	.973	.799	85.6	582
90	.926	.779	78.4	537	.966	.798	83.0	571	.973	.798	87.9	585	.969	.799	85.6	575
95 (tip)	.938	.786	75.5	536	.959	.806	80.1	543	.968	.803	86.0	567	.962	.806	83.3	549
MR	.921	.790	78.3	506	.964	.809	79.4	542	.968	.810	85.2	555	.973	.813	84.4	555
	260°				290°				320°				350°			
5 (hub)	.957	.850	87.7	455	.973	.856	86.2	471	.977	.855	89.1	482	.967	.850	96.3	472
10	.963	.843	87.8	480	.975	.847	87.4	494	.977	.846	89.8	502	.977	.843	95.1	506
15	.965	.837	88.5	497	.976	.841	87.4	509	.976	.839	89.2	573	.977	.836	94.8	520
30	.977	.818	89.7	556	.979	.819	87.5	555	.977	.819	88.5	554	.974	.812	93.6	561
50	.977	.800	89.0	588	.975	.802	87.9	581	.975	.799	89.2	587	.976	.794	93.0	596
70	.976	.793	89.2	599	.974	.794	88.1	594	.974	.792	89.2	598	.974	.785	92.6	608
85	.972	.793	89.9	592	.969	.796	87.3	583	.970	.794	88.6	589	.971	.787	92.8	601
90	.969	.795	90.3	585	.966	.796	87.3	578	.968	.794	88.6	585	.969	.789	93.1	595
95 (tip)	.967	.802	89.1	570	.961	.804	85.1	555	.964	.802	86.4	563	.966	.796	91.7	579
MR	.972	.808	89.1	566	.974	.812	87.5	562	.974	.810	89.0	566	.973	.803	93.5	575

1) Test environment: P_o = 1973 psfa, T_o = 522.5°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta^\circ_4 = \tan^{-1}[\tan\beta_4/\cos\epsilon]$

Table XXIII Flow Distributions at Rotor Inlet for Circumferential Distortion, 10 Degree Closed Stator, Solid Casing

Disk Probe Station 4 95% Speed $W\sqrt{\theta}/\delta$ = 154.14 lb/sec

Circumferential Position % Span	20° P_4/P_o	20° p_4/P_o	20° $90-\beta°_4$	20° Vm	50° P_4/P_o	50° p_4/P_o	50° $90-\beta°_4$	50° Vm	80° P_4/P_o	80° p_4/P_o	80° $90-\beta°_4$	80° Vm	110° P_4/P_o	110° p_4/P_o	110° $90-\beta°_4$	110° Vm
5 (hub)	.959	.871	97.1	409	.972	.859	107.9	443	.936	.836	103.6	431	.890	.825	90.5	366
10	.969	.865	95.4	444	.969	.853	105.2	455	.928	.828	100.8	438	.889	.816	92.1	388
15	.977	.860	94.6	472	.959	.848	103.8	452	.918	.822	99.9	435	.885	.808	92.0	399
30	.979	.844	92.6	507	.983	.833	99.1	529	.896	.810	97.6	418	.885	.791	91.7	442
50	.977	.827	92.4	538	.976	.819	97.7	548	.885	.798	97.6	423	.884	.781	90.9	465
70	.976	.822	91.0	547	.974	.815	97.3	553	.883	.793	96.4	433	.881	.776	91.1	472
85	.971	.824	89.3	534	.972	.817	97.3	545	.881	.796	94.9	421	.881	.777	91.3	467
90	.969	.825	89.3	529	.970	.819	97.3	537	.881	.796	95.4	419	.882	.779	92.3	466
95 (tip)	.963	.833	87.4	502	.965	.826	95.3	517	.882	.801	95.9	409	.882	.784	90.4	453
MR	.974	.836	92.2	516	.974	.827	99.2	527	.896	.806	97.9	427	.884	.788	91.3	448
	140°				170°				200°				230°			
5 (hub)	.950	.837	73.0	449	.976	.858	71.8	450	.957	.861	80.9	425	.969	.868	79.9	433
10	.950	.833	75.1	464	.979	.852	74.1	474	.969	.853	81.5	466	.974	.860	81.4	462
15	.954	.828	76.5	484	.977	.847	75.4	482	.976	.849	82.8	489	.964	.855	81.9	455
30	.944	.812	79.2	503	.970	.831	78.3	507	.967	.832	84.3	509	.977	.838	83.1	515
50	.914	.797	81.2	483	.961	.815	80.3	527	.975	.814	85.1	557	.980	.818	84.3	557
70	.905	.791	82.0	482	.965	.807	82.0	551	.975	.807	85.7	571	.978	.812	85.0	566
85	.922	.792	80.9	507	.975	.811	83.1	560	.974	.809	87.2	568	.974	.813	85.0	558
90	.933	.793	79.7	523	.972	.811	83.1	555	.972	.809	87.5	563	.970	.813	84.8	552
95 (tip)	.944	.800	76.4	521	.961	.819	80.4	519	.968	.816	85.8	544	.966	.822	82.3	525
MR	.928	.805	79.4	490	.969	.823	79.4	523	.972	.822	84.9	537	.975	.828	83.7	531
	260°				290°				320°				350°			
5 (hub)	.960	.865	86.0	428	.981	.874	84.4	447	.981	.875	88.3	448	.972	.871	96.2	434
10	.963	.857	86.9	452	.980	.865	86.0	466	.980	.867	88.8	463	.981	.864	94.9	469
15	.967	.852	87.5	471	.980	.860	86.0	477	.980	.862	88.3	473	.981	.858	94.5	483
30	.980	.834	88.4	530	.982	.843	86.0	515	.980	.844	87.4	510	.978	.839	93.6	515
50	.979	.816	88.4	561	.978	.825	87.2	544	.979	.826	88.8	544	.979	.820	92.8	554
70	.978	.810	88.3	572	.977	.817	87.3	557	.976	.816	88.8	558	.977	.813	92.5	564
85	.975	.811	89.1	566	.974	.820	85.8	545	.974	.820	87.3	546	.975	.815	92.7	558
90	.974	.812	89.9	562	.971	.821	85.8	539	.972	.821	87.3	540	.974	.816	93.1	554
95 (tip)	.973	.818	88.3	548	.966	.829	84.1	514	.967	.829	86.1	518	.969	.823	91.8	534
MR	.975	.825	88.2	540	.978	.834	86.3	526	.978	.835	88.2	525	.977	.829	93.3	533

1) Test environment: P_o = 1988 psfa, T_o = 514.8°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta°_4 = \tan^{-1}\left[\tan\beta_4/\cos\right]$

Table XXIII Flow Distributions at Rotor Inlet for Circumferential Distortion, 10 Degree Closed Stator, Solid Casing

Disk Probe Station 4 95% Speed $W\sqrt{\theta}/\delta$ = 148.11 lb/sec

Circumferential Position % Span	20° P_4/P_o	20° P_4/P_o	20° $90-\beta_4$	20° Vm	50° P_4/P_o	50° P_4/P_o	50° $90-\beta_4$	50° Vm	80° P_4/P_o	80° P_4/P_o	80° $90-\beta_4$	80° Vm	110° P_4/P_o	110° P_4/P_o	110° $90-\beta_4$	110° Vm
5 (hub)	.965	.883	98.2	391	.975	.868	109.8	424	.943	.850	103.7	414	.896	.836	92.4	347
10	.971	.877	97.1	420	.972	.862	106.8	439	.936	.842	101.7	422	.895	.828	92.6	371
15	.980	.872	96.0	449	.963	.856	104.9	438	.926	.836	100.4	416	.893	.821	93.1	384
30	.981	.872	94.3	481	.984	.845	100.4	506	.904	.824	98.8	397	.892	.806	93.5	421
50	.980	.858	93.8	507	.979	.835	99.1	519	.895	.815	98.8	399	.890	.794	92.5	446
70	.978	.845	91.6	507	.977	.832	98.7	521	.891	.810	98.1	404	.890	.791	92.0	453
85	.974	.843	89.3	492	.975	.836	98.7	511	.889	.813	96.4	393	.889	.792	92.4	447
90	.971	.848	89.6	487	.972	.837	98.7	506	.888	.814	96.4	389	.890	.793	93.4	447
95 (tip)	.966	.848	89.5	466	.967	.844	97.6	483	.888	.818	96.4	376	.890	.799	91.5	436
MR	.976	.853	93.2	483	.976	.842	100.7	499	.904	.822	99.0	403	.891	.802	92.6	429
	140°				170°				200°				230°			
5 (hub)	.954	.848	73.1	435	.974	.867	70.6	426	.957	.871	80.2	401	.976	.880	78.0	417
10	.953	.843	74.8	448	.980	.862	73.3	455	.969	.864	80.7	443	.979	.872	80.9	445
15	.957	.839	76.5	468	.978	.857	74.6	462	.977	.860	82.1	468	.969	.868	80.9	435
30	.953	.824	79.4	495	.972	.841	78.7	492	.971	.843	83.7	495	.980	.850	83.4	494
50	.927	.810	81.1	479	.965	.828	80.2	509	.974	.827	84.3	531	.981	.835	83.9	527
70	.916	.803	82.2	475	.967	.820	81.2	528	.976	.821	85.3	547	.980	.827	84.5	540
85	.930	.805	80.9	496	.976	.823	82.3	538	.977	.822	86.6	547	.977	.829	84.4	532
90	.941	.806	80.1	511	.973	.824	82.4	533	.975	.821	87.1	545	.974	.830	84.4	525
95 (tip)	.947	.813	77.7	504	.964	.830	80.6	503	.971	.829	85.7	524	.966	.837	82.6	496
MR	.937	.817	79.5	480	.971	.835	79.0	503	.973	.834	84.3	515	.978	.842	83.1	506
	260°				290°				320°				350°			
5 (hub)	.969	.879	84.4	411	.984	.889	83.3	420	.984	.890	88.0	420	.973	.885	96.7	407
10	.972	.872	85.7	435	.984	.880	85.0	441	.983	.882	88.8	436	.983	.877	95.3	445
15	.973	.866	86.7	451	.983	.875	85.1	451	.982	.876	88.8	448	.983	.872	95.2	457
30	.982	.850	87.8	501	.984	.860	86.2	485	.983	.862	88.6	479	.980	.856	94.2	484
50	.981	.834	87.5	532	.980	.844	86.7	509	.982	.848	88.6	506	.981	.841	93.1	518
70	.980	.825	88.1	547	.980	.838	86.7	521	.979	.838	88.6	521	.979	.834	92.8	528
85	.978	.827	88.2	540	.977	.840	85.6	511	.976	.841	87.8	510	.977	.836	92.9	521
90	.977	.829	89.2	533	.974	.840	85.5	505	.974	.843	87.1	502	.976	.838	92.9	515
95 (tip)	.975	.835	87.9	520	.970	.848	83.6	483	.971	.849	85.5	483	.972	.844	91.8	497
MR	.978	.841	87.5	514	.981	.852	85.9	493	.981	.854	88.3	491	.979	.848	93.7	499

1) Test environment: P_o = 1995 psfa, T_o = 520.4°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta^\circ_4 = \tan^{-1}\left[\tan\beta_4/\cos\xi\right]$

Table XXIV Flow Distributions of Rotor Inlet for Circumferential Distortion, Nominal Stator, Treated Casing

Disk Probe Station 4 80% Speed $W\sqrt{\theta}/\delta$ = 147.67 lb/sec

Circumferential Position % Span	20° P_4/P_o	20° p_4/P_o	20° $90-\beta_4$	20° Vm	50° P_4/P_o	50° p_4/P_o	50° $90-\beta_4$	50° Vm	80° P_4/P_o	80° p_4/P_o	80° $90-\beta_4$	80° Vm	110° P_4/P_o	110° p_4/P_o	110° $90-\beta_4$	110° Vm
5 (hub)	.967	.882	97.9	399	.972	.871	107.5	417	.936	.850	104.2	398	.900	.843	91.1	340
10	.978	.875	98.0	439	.966	.867	104.2	422	.925	.842	103.3	395	.901	.836	92.2	364
15	.984	.870	97.6	460	.961	.862	102.4	426	.914	.837	102.1	384	.898	.831	92.2	371
30	.981	.856	95.5	487	.983	.852	98.7	495	.898	.826	100.9	377	.898	.817	91.7	405
50	.976	.839	92.3	513	.979	.840	97.9	512	.895	.816	96.9	399	.895	.807	90.9	426
70	.981	.842	95.2	515	.978	.835	96.9	521	.891	.818	98.8	399	.894	.804	90.9	431
85	.979	.837	93.9	521	.976	.838	96.7	513	.900	.814	97.9	415	.894	.806	90.9	426
90	.972	.840	92.3	505	.975	.838	96.7	511	.894	.817	96.8	396	.894	.806	91.0	426
95 (tip)	.966	.846	91.2	482	.971	.844	95.1	493	.894	.821	96.8	384	.894	.811	88.6	413
MR	.977	.847	94.6	497	.976	.846	98.9	495	.904	.823	99.2	400	.896	.814	91.1	411
	140°				170°				200°				230°			
5 (hub)	.954	.853	73.8	424	.977	.869	75.3	438	.974	.873	80.6	431	.975	.876	83.4	431
10	.956	.849	75.6	442	.982	.862	78.3	467	.979	.867	82.6	456	.976	.868	85.7	451
15	.959	.844	76.9	459	.980	.860	78.8	469	.979	.863	84.2	467	.970	.863	85.7	449
30	.951	.833	79.6	473	.972	.844	82.9	493	.972	.847	84.3	487	.978	.848	87.3	498
50	.925	.820	81.3	453	.976	.833	85.9	525	.975	.835	85.2	519	.978	.835	87.8	526
70	.918	.817	82.0	448	.968	.835	82.9	504	.977	.829	85.8	533	.981	.834	87.3	530
85	.934	.819	80.6	472	.967	.832	83.7	509	.978	.832	87.4	529	.980	.831	87.4	535
90	.942	.820	79.8	485	.974	.833	85.8	521	.977	.832	87.6	529	.974	.834	87.8	520
95 (tip)	.954	.826	76.6	487	.968	.839	84.7	498	.974	.838	85.8	511	.967	.839	87.8	498
MR	.937	.828	79.6	458	.972	.840	82.8	501	.976	.842	85.0	506	.977	.841	86.9	510
	260°				290°				320°				350°			
5 (hub)	.968	.875	86.7	420	.983	.879	88.1	441	.984	.882	91.0	438	.975	.882	96.1	417
10	.974	.868	87.2	447	.983	.870	89.5	463	.983	.873	92.2	457	.982	.873	94.3	452
15	.974	.863	87.6	460	.984	.866	89.5	473	.983	.868	91.8	467	.981	.868	93.8	462
30	.981	.848	88.8	503	.985	.850	90.0	507	.983	.852	91.2	500	.979	.851	92.8	494
50	.981	.835	88.8	530	.977	.832	89.8	529	.978	.835	91.2	525	.981	.837	92.0	525
70	.981	.830	88.7	538	.981	.836	89.9	527	.982	.839	91.2	523	.980	.832	92.1	532
85	.978	.832	89.2	531	.980	.830	89.9	537	.980	.834	91.1	531	.978	.832	92.2	529
90	.977	.832	89.6	529	.973	.832	89.7	522	.975	.835	91.1	520	.976	.833	92.2	525
95 (tip)	.974	.838	88.3	511	.968	.840	88.4	499	.971	.842	90.3	500	.973	.839	90.6	508
MR	.978	.842	88.5	511	.980	.842	89.7	513	.980	.845	91.2	509	.979	.845	92.7	506

1) Test environment: P_o = 2001 psfa, T_o = 522.4°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta'_4 = \tan^{-1}[\tan\beta_4/\cos\xi]$

Table XXIV Flow Distributions of Rotor Inlet for Circumferential Distortion, Nominal Stator, Treated Casing

Disk Probe Station 4 80% Speed $W\sqrt{\theta}/\delta$ = 116.09 lb/sec

Circumferential Position % Span	P_4/P_o	p_4/P_o	$90-\beta'_4$	Vm	P_4/P_o	p_4/P_o	$90-\beta'_4$	Vm	P_4/P_o	p_4/P_o	$90-\beta'_4$	Vm	P_4/P_o	p_4/P_o	$90-\beta'_4$	Vm
	20°				50°				80°				110°			
5 (hub)	.977	.930	100.6	292	.984	.920	109.3	327	.967	.906	106.4	324	.938	.905	94.4	252
10	.983	.925	101.1	321	.984	.917	107.9	335	.962	.900	106.5	329	.938	.899	94.4	273
15	.988	.920	101.1	349	.979	.915	106.1	332	.955	.896	106.6	322	.937	.893	94.4	290
30	.989	.912	100.0	371	.991	.909	101.3	381	.942	.890	106.5	304	.936	.883	94.3	320
50	.985	.911	95.1	369	.988	.907	101.0	381	.936	.889	103.9	291	.935	.875	94.4	341
70	.988	.907	98.2	385	.987	.908	100.1	378	.938	.886	105.4	308	.935	.874	94.0	343
85	.987	.905	97.9	386	.986	.912	100.1	366	.937	.887	104.0	302	.936	.876	94.0	339
90	.983	.912	94.9	361	.985	.913	100.0	362	.936	.891	103.8	287	.935	.875	94.0	341
95 (tip)	.979	.916	94.9	341	.982	.917	98.6	345	.937	.895	103.8	277	.935	.881	92.7	322
MR	.986	.912	97.9	367	.987	.911	102.0	368	.943	.891	105.0	306	.936	.881	94.2	325
	140°				170°				200°				230°			
5 (hub)	.973	.907	73.5	337	.984	.913	75.9	351	.983	.921	78.4	331	.987	.924	82.5	338
10	.972	.902	73.8	348	.988	.913	76.0	360	.988	.916	79.3	358	.988	.921	82.6	348
15	.974	.899	75.5	364	.987	.911	77.0	365	.987	.913	80.8	366	.983	.920	82.7	339
30	.969	.891	78.8	378	.984	.903	80.3	383	.985	.904	82.5	386	.986	.913	83.5	367
50	.958	.882	80.1	375	.985	.895	84.4	409	.985	.896	83.9	406	.987	.906	85.3	386
70	.951	.880	81.2	366	.980	.895	81.5	394	.985	.891	84.0	418	.988	.907	84.0	386
85	.960	.882	81.1	380	.979	.892	82.7	400	.986	.892	85.4	417	.988	.904	84.6	394
90	.966	.884	80.3	390	.984	.895	84.4	405	.985	.893	86.0	414	.985	.906	85.3	383
95 (tip)	.971	.888	78.0	388	.980	.897	84.3	391	.983	.897	85.0	401	.981	.908	85.3	368
MR	.963	.888	79.0	370	.982	.899	81.5	392	.985	.900	83.2	397	.987	.909	84.2	377
	260°				290°				320°				350°			
5 (hub)	.982	.931	84.4	305	.991	.932	88.1	329	.990	.934	92.2	321	.982	.933	96.2	300
10	.984	.924	84.2	332	.992	.928	88.1	344	.990	.930	92.3	333	.989	.927	96.2	334
15	.985	.919	84.3	347	.991	.925	88.2	348	.990	.926	92.4	344	.988	.924	96.3	343
30	.987	.910	85.8	375	.991	.918	88.1	366	.990	.919	92.3	362	.987	.916	95.3	361
50	.989	.903	86.5	397	.986	.912	88.2	372	.986	.915	92.3	362	.988	.910	94.2	379
70	.989	.902	86.6	401	.989	.911	88.1	380	.990	.913	92.2	375	.987	.909	93.7	381
85	.987	.904	86.9	393	.988	.909	88.1	381	.988	.912	92.2	375	.987	.912	93.6	373
90	.987	.905	87.4	390	.985	.912	88.0	368	.985	.916	92.2	358	.986	.912	93.6	368
95 (tip)	.984	.909	87.2	374	.982	.915	88.0	351	.982	.920	92.1	339	.983	.917	92.5	352
MR	.987	.909	86.1	381	.988	.915	88.1	368	.988	.918	92.2	361	.987	.915	94.5	364

1) Test environment: P_o = 2043 psfa, T_o = 528.1°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta'_4 = \tan^{-1}\left[\tan\beta_4/\cos\epsilon\right]$

Table XXIV Flow Distributions of Rotor Inlet for Circumferential Distortion, Nominal Stator, Treated Casing

Disk Probe Station 4 90% Speed $W\sqrt{\theta}/\delta$ = 132.61 lb/sec

Circumferential Position / % Span	20° P_4/P_0	20° P_4/P_0	20° 90-β°_4	20° Vm	50° P_4/P_0	50° P_4/P_0	50° 90-β°_4	50° Vm	80° P_4/P_0	80° P_4/P_0	80° 90-β°_4	80° Vm	110° P_4/P_0	110° P_4/P_0	110° 90-β°_4	110° Vm
5 (hub)	.970	.901	102.0	352	.978	.892	109.8	380	.956	.874	107.4	378	.918	.872	94.3	301
10	.976	.896	102.1	380	.977	.887	106.8	396	.949	.868	105.7	382	.918	.861	93.3	336
15	.984	.892	101.2	407	.970	.884	105.2	390	.942	.863	104.5	379	.918	.856	93.7	351
30	.984	.882	99.5	432	.986	.873	100.9	454	.924	.853	104.0	363	.915	.843	93.3	381
50	.979	.881	94.7	429	.982	.868	100.2	458	.916	.852	101.6	348	.915	.835	93.4	401
70	.984	.874	98.0	450	.981	.870	99.7	454	.917	.849	102.8	359	.916	.834	92.9	405
85	.982	.873	97.2	449	.981	.874	99.6	442	.917	.850	101.8	359	.915	.835	93.0	400
90	.976	.883	94.6	419	.980	.876	99.6	437	.916	.854	101.4	344	.917	.838	94.0	396
95 (tip)	.972	.888	94.5	396	.975	.883	98.3	414	.916	.857	101.4	335	.915	.841	91.8	386
MR	.980	.881	97.7	427	.981	.875	101.5	439	.925	.856	103.1	362	.916	.842	93.3	385
	140°				170°				200°				230°			
5 (hub)	.965	.879	72.7	388	.978	.886	74.8	401	.976	.893	77.6	388	.983	.898	81.2	394
10	.963	.872	74.5	402	.983	.881	76.4	425	.982	.887	80.0	417	.983	.894	81.9	404
15	.966	.870	75.9	417	.983	.879	77.7	433	.982	.885	81.5	423	.976	.890	82.9	399
30	.962	.856	79.0	444	.978	.866	81.6	457	.980	.872	83.4	448	.980	.876	84.7	442
50	.946	.847	81.1	436	.980	.856	84.6	483	.979	.862	84.3	469	.982	.867	85.9	465
70	.938	.844	82.1	427	.972	.856	82.2	469	.979	.856	84.6	482	.982	.867	84.9	485
85	.950	.845	80.8	447	.973	.854	83.1	474	.980	.858	85.8	480	.983	.864	85.5	473
90	.955	.845	80.3	456	.979	.856	84.7	481	.980	.860	86.4	477	.979	.866	85.8	462
95 (tip)	.963	.850	77.6	455	.974	.859	84.7	466	.978	.864	84.8	464	.974	.871	85.3	441
MR	.953	.853	79.4	432	.977	.862	81.8	463	.979	.867	83.6	459	.981	.872	84.7	452
	260°				290°				320°				350°			
5 (hub)	.976	.905	83.6	360	.988	.911	87.1	377	.987	.914	92.0	369	.974	.905	97.1	356
10	.978	.900	84.5	382	.988	.907	87.2	389	.986	.908	92.4	381	.984	.901	95.4	393
15	.979	.896	85.1	393	.988	.904	87.2	394	.987	.905	92.5	389	.985	.899	95.4	400
30	.983	.883	86.2	433	.987	.893	87.8	419	.986	.895	92.5	413	.983	.887	94.3	425
50	.985	.873	87.0	458	.982	.885	87.9	426	.982	.890	92.2	414	.985	.878	93.4	448
70	.985	.872	86.6	461	.985	.884	87.9	435	.985	.885	92.4	433	.983	.874	92.9	453
85	.983	.875	87.2	450	.984	.993	87.9	436	.984	.885	92.4	431	.983	.879	93.2	442
90	.981	.876	87.8	445	.980	.888	87.8	417	.979	.892	92.1	406	.982	.879	93.2	441
95 (tip)	.980	.879	86.3	435	.975	.891	87.8	397	.977	.897	91.0	387	.978	.885	91.9	420
MR	.983	.880	86.3	438	.984	.890	87.7	420	.984	.893	92.3	413	.983	.884	93.9	431

1) Test environment: P_0 = 2026 psfa, T_0 = 518.4°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta^\circ_4 = \tan^{-1}\left[\tan\beta_4/\cos\epsilon\right]$

Table XXIV Flow Distributions of Rotor Inlet for Circumferential Distortion, Nominal Stator, Treated CAsing

Disk Probe Station 4 95% Speed $W\sqrt{\theta}/\delta$ = 172.53 lb/sec

Circumferential Position % Span	20° P_4/Po	20° P_4/Po	20° $90-\beta_4$	20° Vm	50° P_4/Po	50° P_4/Po	50° $90-\beta_4$	50° Vm	80° P_4/Po	80° P_4/Po	80° $90-\beta_4$	80° Vm	110° P_4/Po	110° P_4/Po	110° $90-\beta_4$	110° Vm
5 (hub)	.954	.823	98.1	501	.959	.811	105.6	519	.906	.781	102.6	496	.859	.775	87.2	426
10	.969	.813	97.5	546	.948	.801	102.7	527	.890	.772	99.6	492	.861	.763	89.6	459
15	.975	.806	97.0	570	.946	.793	101.1	542	.875	.762	99.2	484	.857	.754	88.9	473
30	.972	.787	94.6	603	.975	.778	97.7	619	.856	.744	98.4	489	.857	.735	88.7	517
50	.964	.766	93.0	629	.970	.766	97.1	632	.852	.727	95.4	523	.853	.719	88.0	544
70	.972	.768	94.9	635	.967	.764	96.9	632	.856	.780	96.6	522	.851	.718	88.9	545
85	.968	.765	94.4	635	.965	.762	96.8	632	.859	.724	95.6	542	.852	.719	89.1	544
90	.958	.766	92.9	621	.962	.763	96.8	628	.851	.729	95.4	517	.852	.720	89.1	541
95 (tip)	.952	.777	90.9	593	.956	.770	94.8	608	.852	.737	95.4	502	.853	.727	86.5	526
MR	.966	.777	94.8	611	.965	.774	98.3	610	.864	.738	97.1	518	.854	.730	88.5	522
	140°				170°				200°				230°			
5 (hub)	.937	.793	72.8	514	.968	.812	76.1	537	.968	.819	80.3	530	.965	.822	83.9	525
10	.938	.786	74.8	534	.974	.799	79.1	574	.971	.811	82.8	554	.964	.809	86.6	550
15	.946	.781	76.5	561	.970	.797	79.5	575	.970	.805	83.9	566	.955	.801	86.6	551
30	.939	.765	79.0	585	.962	.779	82.6	600	.962	.784	84.5	592	.972	.724	87.4	609
50	.909	.750	80.4	569	.965	.765	86.1	631	.963	.767	85.3	624	.970	.768	88.6	634
70	.877	.744	80.8	561	.954	.764	83.6	616	.965	.763	85.8	635	.974	.770	87.8	636
85	.917	.750	80.0	581	.949	.760	84.2	616	.968	.767	87.3	633	.972	.768	87.9	636
90	.929	.752	79.5	593	.962	.766	86.0	626	.968	.768	87.6	631	.964	.768	88.6	627
95 (tip)	.938	.761	76.8	585	.953	.774	84.3	596	.964	.776	85.8	610	.954	.776	87.1	597
MR	.921	.760	78.8	567	.960	.773	83.2	607	.966	.778	85.0	608	.969	.778	87.6	615
	260°				290°				320°				350°			
5 (hub)	.957	.822	86.9	513	.976	.825	89.3	540	.976	.825	92.2	541	.955	.823	95.4	507
10	.963	.813	87.7	543	.975	.811	90.2	565	.976	.813	92.4	563	.974	.813	94.4	558
15	.966	.805	88.1	562	.976	.803	90.4	581	.974	.806	91.7	574	.973	.805	93.8	572
30	.974	.785	88.3	610	.978	.783	90.2	619	.975	.786	90.8	610	.972	.782	92.8	611
50	.974	.770	88.9	637	.966	.764	89.9	636	.968	.765	91.1	636	.972	.768	92.2	636
70	.973	.769	88.8	637	.971	.767	90.8	637	.974	.770	91.9	637	.970	.766	92.1	636
85	.969	.766	89.4	637	.971	.767	90.6	637	.971	.767	91.5	637	.968	.764	92.2	636
90	.968	.766	90.0	634	.963	.764	89.9	631	.964	.765	91.1	630	.966	.764	92.5	636
95 (tip)	.966	.775	88.4	617	.957	.775	88.4	604	.959	.775	89.7	608	.961	.769	90.5	619
MR	.970	.780	88.6	613	.971	.777	90.3	619	.971	.778	91.6	618	.969	.779	92.8	614

1) Test environment: P_o = 1950 psfa, T_o = 523.6°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta'_4 = \tan^{-1}\left[\tan\beta_4/\cos\epsilon\right]$

Table XXIV Flow Distributions of Rotor Inlet for Circumferential Distortion, Nominal Stator, Treated Casing

Disk Probe Station 4 95% Speed $W\sqrt{\theta}/\delta$ = 155.66 lb/sec

Circumferential Position % Span	P_4/P_o	P_4/P_o	$90-\beta_4$	Vm	P_4/P_o	P_4/P_o	$90-\beta_4$	Vm	P_4/P_o	P_4/P_o	$90-\beta_4$	Vm	P_4/P_o	P_4/P_o	$90-\beta_4$	Vm
	20°				50°				80°				110°			
5 (hub)	.959	.867	100.7	414	.970	.854	108.6	448	.933	.826	107.1	442	.888	.822	93.1	368
10	.969	.857	100.2	457	.965	.848	105.9	457	.923	.819	104.2	444	.889	.813	93.7	396
15	.980	.855	98.7	483	.956	.843	104.1	454	.910	.811	103.2	436	.886	.804	93.4	413
30	.976	.837	96.8	515	.981	.828	99.9	535	.889	.799	101.7	422	.884	.785	92.6	456
50	.970	.825	93.7	529	.976	.816	98.6	550	.881	.790	99.4	432	.881	.771	91.7	483
70	.976	.820	96.4	546	.974	.812	98.1	556	.883	.787	101.2	440	.880	.767	91.7	490
85	.975	.821	95.4	545	.972	.816	98.2	546	.883	.785	99.3	448	.879	.769	91.8	485
90	.965	.827	93.6	518	.970	.818	98.6	539	.881	.791	99.3	427	.881	.770	92.7	483
95 (tip)	.959	.834	93.4	493	.965	.826	97.1	516	.881	.796	100.1	414	.879	.775	90.2	470
MR	.972	.831	96.1	519	.973	.824	100.1	529	.892	.796	101.2	438	.882	.780	92.2	463
	140°				170°				200°				230°			
5 (hub)	.949	.831	74.0	462	.973	.846	76.1	478	.970	.852	79.2	468	.975	.859	82.4	467
10	.950	.826	75.7	478	.979	.838	78.7	509	.975	.844	81.5	496	.976	.850	84.7	490
15	.955	.820	77.3	502	.976	.832	79.6	518	.976	.841	83.1	505	.964	.842	85.4	485
30	.946	.802	79.9	527	.969	.815	82.4	542	.968	.817	84.2	540	.977	.821	86.5	548
50	.917	.786	82.0	513	.972	.801	86.4	578	.968	.802	84.9	569	.976	.806	87.4	575
70	.909	.782	82.2	508	.962	.801	83.4	560	.972	.801	85.5	578	.979	.807	86.9	577
85	.925	.783	81.2	532	.959	.796	84.7	567	.973	.802	86.5	579	.978	.803	87.3	584
90	.938	.787	80.6	544	.970	.800	86.3	577	.974	.805	87.2	574	.971	.807	87.3	567
95 (tip)	.944	.791	77.4	542	.964	.808	84.6	552	.970	.808	85.3	562	.964	.814	86.5	541
MR	.930	.796	80.1	513	.967	.808	83.4	554	.971	.813	84.5	552	.975	.816	86.5	556
	260°				290°				320°				350°			
5 (hub)	.965	.859	84.6	451	.984	.872	86.6	459	.982	.873	91.1	454	.963	.867	95.9	425
10	.969	.852	85.6	473	.983	.862	88.1	480	.981	.864	92.3	471	.979	.861	94.8	472
15	.970	.846	86.4	488	.983	.855	88.4	494	.981	.859	91.5	481	.978	.854	94.1	484
30	.978	.826	87.3	541	.983	.834	88.9	534	.980	.842	91.0	515	.976	.838	93.4	516
50	.978	.810	87.6	571	.974	.814	88.5	558	.974	.824	90.9	539	.977	.819	92.5	554
70	.978	.805	87.3	580	.978	.817	89.6	560	.979	.824	91.3	547	.976	.813	92.4	562
85	.976	.809	88.2	570	.977	.811	89.6	569	.977	.817	91.2	556	.974	.815	92.8	556
90	.974	.810	88.4	566	.970	.815	88.5	551	.972	.827	90.9	531	.973	.816	93.1	551
95 (tip)	.971	.815	87.5	551	.965	.824	87.3	524	.966	.832	90.5	510	.970	.825	91.7	531
MR	.975	.820	87.2	549	.978	.825	88.8	542	.977	.833	91.2	528	.975	.828	93.2	532

1) Test environment: P_o = 1976 psfa, T_o = 516.1°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta°_4 = \tan^{-1}[\tan\beta_4/\cos\phi]$

Table XXIV Flow Distributions of Rotor Inlet for Circumferential Distortion, Nominal Stator, Treated Casing

Disk Probe Station 4 95% Speed $W\sqrt{\theta}/\delta$ = 143.24 lb/sec

Circumferential Position % Span	20° P_4/P_o	20° p_4/P_o	20° $90-\beta^\circ_4$	20° Vm	50° P_4/P_o	50° p_4/P_o	50° $90-\beta^\circ_4$	50° Vm	80° P_4/P_o	80° p_4/P_o	80° $90-\beta^\circ_4$	80° Vm	110° P_4/P_o	110° p_4/P_o	110° $90-\beta^\circ_4$	110° Vm
5 (hub)	.964	.883	102.7	382	.973	.872	109.5	414	.948	.852	107.5	414	.903	.846	94.1	337
10	.972	.877	102.6	4.4	.973	.866	106.5	432	.941	.842	106.7	421	.903	.839	93.5	366
15	.981	.872	100.7	446	.964	.862	105.1	427	.932	.839	104.5	417	.901	.830	93.5	381
30	.981	.863	98.1	469	.984	.850	100.5	496	.911	.827	104.5	399	.900	.814	93.2	418
50	.975	.855	94.7	479	.979	.844	99.4	503	.899	.824	101.6	385	.899	.803	92.6	445
70	.981	.850	98.1	494	.978	.843	98.9	503	.902	.821	103.0	396	.900	.802	92.5	450
85	.979	.849	96.5	495	.976	.846	98.8	493	.901	.820	102.4	398	.899	.802	92.7	445
90	.970	.855	94.7	467	.973	.848	99.2	485	.900	.825	101.4	383	.899	.803	93.6	444
95 (tip)	.964	.862	94.7	443	.970	.854	98.3	468	.901	.830	101.4	372	.899	.810	91.9	429
MR	.976	.858	97.5	472	.977	.850	100.9	484	.911	.828	103.4	400	.900	.811	93.0	426
	140° P_4/P_o	140° p_4/P_o	140° $90-\beta^\circ_4$	140° Vm	170° P_4/P_o	170° p_4/P_o	170° $90-\beta^\circ_4$	170° Vm	200° P_4/P_o	200° p_4/P_o	200° $90-\beta^\circ_4$	200° Vm	230° P_4/P_o	230° p_4/P_o	230° $90-\beta^\circ_4$	230° Vm
5 (hub)	.958	.854	72.9	429	.977	.866	74.9	442	.973	.872	78.3	430	.980	.880	81.1	429
10	.957	.849	74.6	441	.980	.859	77.6	470	.980	.866	80.3	460	.981	.872	83.3	450
15	.960	.845	76.2	459	.979	.856	78.6	474	.979	.861	81.5	469	.970	.868	83.5	440
30	.960	.831	79.0	493	.973	.839	82.5	504	.977	.848	83.0	492	.976	.849	85.8	492
50	.936	.817	81.1	481	.976	.828	85.2	533	.974	.834	84.0	517	.980	.840	86.5	517
70	.927	.815	82.0	470	.968	.827	83.0	520	.976	.827	84.4	534	.981	.839	85.8	519
85	.939	.816	81.1	488	.967	.824	84.0	525	.978	.830	85.9	533	.980	.835	86.1	528
90	.949	.819	80.3	499	.974	.828	85.3	529	.978	.832	86.4	529	.976	.839	86.6	513
95 (tip)	.958	.825	77.9	499	.969	.833	85.3	510	.975	.838	85.4	512	.971	.846	86.6	439
MR	.944	.826	79.4	476	.972	.835	82.6	512	.976	.841	83.5	507	.978	.846	85.4	503
	260° P_4/P_o	260° p_4/P_o	260° $90-\beta^\circ_4$	260° Vm	290° P_4/P_o	290° p_4/P_o	290° $90-\beta^\circ_4$	290° Vm	320° P_4/P_o	320° p_4/P_o	320° $90-\beta^\circ_4$	320° Vm	350° P_4/P_o	350° p_4/P_o	350° $90-\beta^\circ_4$	350° Vm
5 (hub)	.972	.887	83.7	398	.986	.895	86.9	411	.985	.897	91.7	405	.969	.890	97.2	384
10	.974	.879	84.3	422	.986	.889	87.0	424	.985	.891	92.6	418	.981	.883	95.3	428
15	.975	.874	84.6	436	.985	.885	87.1	433	.984	.885	92.7	430	.982	.879	95.4	439
30	.980	.860	86.0	477	.985	.870	88.5	465	.984	.873	92.2	458	.981	.866	94.2	466
50	.982	.848	86.7	504	.979	.858	88.6	480	.979	.863	92.1	470	.981	.850	92.9	499
70	.983	.845	86.8	511	.982	.860	88.6	482	.983	.862	92.1	480	.980	.848	92.7	503
85	.980	.847	87.3	504	.981	.856	88.5	488	.982	.860	92.1	481	.979	.849	93.0	497
90	.979	.850	87.7	496	.975	.858	88.2	474	.977	.864	92.0	464	.978	.851	93.1	491
95 (tip)	.976	.854	87.1	482	.972	.863	88.0	456	.974	.870	91.4	445	.974	.856	92.1	474
MR	.979	.856	86.2	485	.981	.865	88.2	469	.982	.869	92.1	462	.979	.859	93.7	478

1) Test environment: P_o = 1995 psfa, T_o = 521.8°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta^\circ_4 = \tan^{-1}[\tan \beta_4/\cos \xi]$

Table XXV Flow Distribution at Stator Discharge for Circumferential Distortion, Nominal Stator, Solid Casing

Combination Probe Station 13 80% Speed W $\sqrt{\theta}/\delta$ = 147.88 lb/sec

Circumferential Position % Span	14°					44°					74°					104°				
	T_{13}/To	P_{13}/Po	P_{13}/Po	$90-\beta_{13}$	Vm	T_{13}/To	P_{13}/Po	P_{13}/Po	$90-\beta_{13}$	Vm	T_{13}/To	P_{13}/Po	P_{13}/Po	$90-\beta_{13}$	Vm	T_{13}/To	P_{13}/Po	P_{13}/Po	$90-\beta_{13}$	Vm
5 (hub)	1.0904	1.170	.907	95.8	687	1.0743	1.185	.944	92.5	649	1.0785	1.167	.954	94.1	611	1.0818	1.235	.967	92.9	673
10	1.0964	1.205	.926	91.1	704	1.0770	1.209	.963	91.4	649	1.0736	1.183	.972	91.0	604	1.0787	1.257	.982	90.4	677
15	1.1005	1.225	.938	90.6	710	1.0786	1.212	.976	91.3	635	1.0677	1.176	.978	92.0	583	1.0750	1.260	.996	90.4	659
30	1.1057	1.254	.963	90.6	708	1.0886	1.222	.992	91.2	626	1.0685	1.171	.986	91.5	565	1.0686	1.227	1.000	90.7	614
50	1.0909	1.226	.969	91.4	665	1.0954	1.236	.995	91.1	641	1.0795	1.167	.992	90.2	553	1.0644	1.186	1.004	90.6	556
70	1.0791	1.202	.973	92.0	629	1.1007	1.259	.987	91.0	678	1.0856	1.168	.992	91.2	556	1.0700	1.169	1.004	91.9	532
85	1.0828	1.195	.999	91.4	580	1.1115	1.261	1.029	90.9	624	1.0942	1.182	1.024	90.2	524	1.0756	1.172	1.031	90.9	491
90	1.0853	1.190	1.013	91.0	552	1.1134	1.248	1.038	90.9	597	1.0966	1.172	1.033	90.8	492	1.0759	1.165	1.043	90.9	450
95 (tip)	1.0849	1.171	1.014	91.9	522	1.1158	1.219	1.026	91.0	578	1.0964	1.150	1.030	92.9	461	1.0774	1.148	1.038	91.3	435
MR	1.0908	1.214	.965	91.7	657	1.0950	1.235	.993	91.2	642	1.0806	1.171	.992	91.3	559	1.0718	1.202	1.003	91.2	580
	134°					164°					194°					224°				
5 (hub)	1.0855	1.265	.916	92.6	771	1.0919	1.226	.930	93.9	717	1.0878	1.283	.890	92.4	819	1.0929	1.253	.929	93.6	745
10	1.0814	1.279	.941	91.1	752	1.0881	1.244	.951	92.1	707	1.0847	1.304	.907	91.3	816	1.0886	1.260	.942	92.1	735
15	1.0788	1.285	.960	91.1	733	1.0842	1.246	.962	91.7	694	1.0827	1.308	.925	91.3	797	1.0875	1.256	.946	92.3	726
30	1.0756	1.269	.977	91.0	695	1.0785	1.229	.967	92.5	667	1.0781	1.287	.943	91.2	756	1.0808	1.240	.953	92.2	697
50	1.0681	1.234	.985	90.9	645	1.0709	1.200	.967	91.0	632	1.0704	1.244	.961	90.7	688	1.0732	1.209	.951	91.2	666
70	1.0654	1.207	.989	92.3	606	1.0690	1.189	.974	92.9	607	1.0694	1.228	.972	91.9	656	1.0721	1.199	.962	92.4	637
85	1.0713	1.215	1.018	90.4	574	1.0731	1.190	1.002	91.3	566	1.0705	1.201	.995	91.4	590	1.0730	1.181	.984	92.3	583
90	1.0732	1.203	1.023	90.3	550	1.0760	1.186	1.014	90.6	542	1.0729	1.194	1.002	89.5	571	1.0766	1.181	.998	90.3	562
95 (tip)	1.0732	1.172	1.023	94.1	503	1.0758	1.159	1.010	92.6	508	1.0745	1.167	.999	89.5	539	1.0762	1.159	.994	90.2	538
MR	1.0730	1.240	.979	91.4	660	1.0765	1.209	.971	92.1	639	1.0753	1.252	.953	91.3	708	1.0785	1.218	.957	92.1	668
	254°					284°					314°					344°				
5 (hub)	1.0902	1.308	.879	91.9	854	1.100	1.263	.919	92.8	771	1.1045	1.242	.903	94.6	771	1.1012	1.262	.876	93.0	824
10	1.0869	1.315	.899	91.7	836	1.0943	1.265	.927	93.0	760	1.1055	1.285	.929	90.7	781	1.1049	1.308	.889	90.2	848
15	1.0849	1.309	.909	91.7	817	1.0914	1.266	.935	92.3	750	1.1004	1.280	.938	90.8	763	1.1019	1.320	.918	90.2	823
30	1.0794	1.292	.931	91.5	775	1.0838	1.248	.944	92.1	719	1.0869	1.249	.945	92.1	721	1.0921	1.312	.932	90.1	797
50	1.0729	1.257	.947	90.9	720	1.0742	1.214	.940	91.9	687	1.0763	1.216	.943	91.6	686	1.0769	1.255	.950	90.5	716
70	1.0726	1.243	.968	91.6	679	1.0738	1.204	.950	93.0	661	1.0751	1.205	.950	92.3	664	1.0783	1.257	.972	91.9	689
85	1.0743	1.217	.991	91.1	618	1.0737	1.184	.971	92.6	607	1.0779	1.201	.977	91.9	620	1.0810	1.246	1.003	91.2	635
90	1.0757	1.205	1.000	89.8	590	1.0767	1.183	.988	89.9	579	1.0813	1.197	.993	90.8	593	1.0839	1.241	1.012	89.8	618
95 (tip)	1.0776	1.175	.996	89.4	557	1.0761	1.160	.986	89.7	552	1.0808	1.170	.993	90.8	556	1.0875	1.206	1.004	89.8	587
MR	1.0778	1.264	.944	91.3	733	1.0809	1.224	.946	92.3	691	1.0847	1.227	.947	92.0	695	1.0864	1.271	.949	91.0	736

1) Test environment: P_o = 1989 psfa, T_o = 520.2°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta_{13} = \tan^{-1} [\tan \beta_{13}/\cos\epsilon]$

Table XXV Flow Distribution at Stator Discharge for Circumferential Distortion, Nominal Stator, Solid Casing

Combination Probe Station 13 80% Speed W $\sqrt{\theta/\delta}$ = 137.95 lb/sec

Circumferential Position % Span	T_{13}/To	P_{13}/Po	14° P_{13}/Po	$90-\beta_{13}$	Vm	T_{13}/To	P_{13}/Po	44° P_{13}/Po	$90-\beta_{13}$	Vm	T_{13}/To	P_{13}/Po	74° P_{13}/Po	$90-\beta_{13}$	Vm	T_{13}/To	P_{13}/Po	104° P_{13}/Po	$90-\beta_{13}$	Vm
5 (hub)	1.0869	1.182	1.003	97.5	553	1.0712	1.199	1.023	95.8	541	1.0808	1.172	1.011	94.9	524	1.0811	1.246	1.010	92.5	626
10	1.0888	1.189	1.000	93.1	572	1.0728	1.205	1.025	94.3	547	1.0763	1.194	1.029	90.7	529	1.0790	1.261	1.029	91.2	615
15	1.0922	1.201	1.002	90.7	587	1.0746	1.213	1.026	90.8	559	1.0710	1.189	1.034	90.6	510	1.0758	1.263	1.042	90.2	598
30	1.1012	1.242	1.019	88.1	614	1.0838	1.232	1.038	89.4	568	1.0670	1.176	1.036	91.6	486	1.0721	1.245	1.044	90.1	573
50	1.1005	1.252	1.037	89.7	600	1.0948	1.255	1.039	89.3	599	1.0794	1.179	1.044	90.7	479	1.0660	1.211	1.046	90.1	522
70	1.0919	1.218	1.041	92.1	545	1.1052	1.276	1.037	90.1	629	1.0886	1.185	1.043	91.6	494	1.0722	1.199	1.047	90.9	505
85	1.1038	-	1.060	90.0	-	1.1128	1.272	1.074	90.0	573	1.0989	1.199	1.070	89.6	467	1.0756	1.203	1.083	91.0	445
90	1.1371	1.186	1.076	88.3	440	1.1154	1.265	1.088	90.1	540	1.1022	1.196	1.086	89.2	433	1.0767	1.197	1.090	90.9	419
95 (tip)	1.1126	-	-	-	-	1.1184	1.240	1.078	90.1	522	1.1021	1.182	1.089	92.6	398	1.0765	1.183	1.083	92.2	410
MR	1.1003	-	-	-	-	1.0949	1.249	1.043	90.5	585	1.0826	1.184	1.044	91.3	488	1.0731	1.223	1.047	90.8	538
			134°					164°					194°					224°		
5 (hub)	1.0845	1.260	.980	91.9	684	1.0893	1.220	.978	94.5	643	2.0328	2.115	1.280	-	-	1.0920	1.248	.974	93.9	680
10	1.0812	1.279	1.005	90.8	670	1.0848	1.240	1.001	91.1	633	1.0844	1.282	.962	92.9	729	1.0864	1.250	.989	91.9	662
15	1.0786	1.280	1.015	90.8	656	1.0818	1.241	1.009	92.0	622	1.0799	1.294	.976	90.8	722	1.0851	1.252	.995	91.8	655
30	1.0765	1.273	1.019	90.7	643	1.0785	1.232	1.016	91.6	600	1.0791	1.300	.993	90.7	705	1.0817	1.241	1.004	91.7	629
50	1.0720	1.251	1.026	90.7	606	1.0737	1.215	1.022	90.5	568	1.0767	1.287	1.005	90.7	676	1.0756	1.219	1.008	90.5	595
70	1.0715	1.235	1.024	90.6	590	1.0719	1.204	1.023	91.5	550	1.0708	1.256	1.009	89.9	636	1.0752	1.210	1.011	91.9	580
85	1.0750	1.234	1.062	90.7	531	1.0763	1.206	1.052	90.7	507	1.0699	1.243	1.012	91.4	617	1.0787	1.213	1.041	91.0	536
90	1.0780	1.219	1.064	90.7	505	1.0793	1.201	1.061	90.5	483	1.0751	-	1.034	93.1	-	1.0819	1.251	1.050	90.4	513
95 (tip)	1.0792	1.194	1.063	92.7	469	1.0788	1.174	1.060	94.5	439	1.0786	1.202	1.048	94.3	507	1.0812	1.176	1.048	94.7	465
MR	1.0756	1.252	1.025	90.8	611	1.0777	1.217	1.021	91.5	574	1.0756	-	1.004	-	-	1.0804	1.226	1.009	91.6	604
			254°					284°					314°					344°		
5 (hub)	1.0903	1.303	.952	92.0	764	1.1019	1.251	.968	93.5	695	1.1001	1.214	.950	96.3	678	1.0970	1.257	.948	93.7	725
10	1.0855	1.306	.966	91.2	747	1.0970	1.258	.984	92.0	681	1.1075	1.273	.974	91.1	712	1.1022	1.303	.951	90.5	768
15	1.0838	1.301	.977	91.3	728	1.0921	1.253	.991	91.9	664	1.1061	1.286	.994	89.7	699	1.1027	1.326	.972	89.6	765
30	1.0791	1.287	.997	91.3	688	1.0856	1.239	1.002	92.0	631	1.0938	1.258	1.008	90.7	648	1.0980	1.336	1.000	89.6	738
50	1.0758	1.264	1.005	90.3	652	1.0792	1.215	1.008	90.9	591	1.0837	1.224	1.012	90.6	598	1.0851	1.279	1.009	89.5	666
70	1.0748	1.257	1.008	91.3	640	1.0778	1.210	1.008	91.7	584	1.0790	1.208	1.008	92.2	582	1.0805	1.259	1.014	90.8	635
85	1.0806	1.259	1.045	89.6	591	1.0809	1.209	1.036	91.2	539	1.0856	1.208	1.034	91.1	542	1.0901	1.253	1.053	90.8	574
90	1.0824	1.244	1.047	90.0	569	1.0847	1.201	1.045	90.7	513	1.0911	1.204	1.046	89.5	516	1.0944	1.244	1.067	90.8	541
95 (tip)	1.0830	1.212	1.044	93.5	530	1.0839	1.178	1.044	93.6	477	1.0903	1.184	1.047	90.9	483	1.0980	1.217	1.056	90.8	522
MR	1.0798	1.273	1.002	90.9	667	1.0849	1.225	1.006	91.7	608	1.0899	1.230	1.005	91.5	616	1.0910	1.282	1.005	90.5	676

1) Test environment: P_o = 2012 psfa, T_o = 518.6°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta_{13} = \tan^{-1}[\tan \beta_{13}/\cos \epsilon]$

Table XXV Flow Distribution at Stator Discharge for Circumferential Distortion, Nominal Stator, Solid Casing

Combination Probe Station 13 80% Speed $W\sqrt{\theta}/\delta$ = 128.53 lb/sec

Circumferential Position % Span	T_{13}/T_o	P_{13}/P_o	p_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	p_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	p_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	p_{13}/P_o	$90-\beta_{13}$	Vm
	14°					44°					74°					104°				
5 (hub)	1.0845	1.174	1.063	104.5	421	1.0710	1.200	1.076	101.8	443	1.0790	1.181	1.051	97.4	465	-	-	-	-	-
10	1.0826	1.138	1.056	102.0	369	1.0699	1.175	1.078	100.9	397	1.0762	1.194	1.056	93.1	482	1.0794	1.254	1.050	94.8	575
15	1.0839	1.132	1.056	96.8	363	1.0712	1.178	1.076	94.9	411	1.0734	1.200	1.063	90.4	476	1.0774	1.263	1.050	91.6	585
30	1.0997	1.228	1.050	89.0	548	1.0796	1.236	1.066	88.2	527	1.0668	1.182	1.070	91.7	432	1.0748	1.265	1.059	89.7	575
50	1.1075	1.268	1.067	87.8	575	1.0937	1.266	1.071	88.1	563	1.0765	1.194	1.077	90.6	441	1.0712	1.259	1.071	89.6	549
70	1.1069	1.244	1.077	89.5	526	1.1037	1.293	1.072	89.4	598	1.0889	1.203	1.077	90.8	459	1.0657	1.228	1.075	90.2	497
85	1.1059	1.213	1.086	90.8	463	1.1133	1.293	1.103	89.8	555	1.0984	1.215	1.104	88.8	429	1.0705	1.229	1.076	91.4	498
90	1.1103	1.212	1.106	89.2	422	1.1147	1.288	1.119	89.8	523	1.1013	1.209	1.117	89.4	390	1.0779	1.238	1.109	89.6	457
95 (tip)	1.1094	1.208	1.115	89.6	396	1.1169	1.276	1.113	89.9	516	1.1011	1.194	1.124	94.6	343	1.0808	1.213	1.116	93.1	398
MR	1.1020	1.226	1.070	91.1	512	1.0943	1.260	1.079	90.6	543	1.0819	1.197	1.077	91.3	446	-	-	-	-	-
	134°					164°					194°					224°				
5 (hub)	1.0828	1.261	1.016	92.7	635	1.0880	1.222	1.020	94.6	583	1.0860	1.281	1.008	92.6	669	1.0944	1.239	1.007	95.1	624
10	1.0798	1.279	1.031	90.6	634	1.0836	1.237	1.038	90.9	575	1.0820	1.289	1.023	91.5	657	1.0896	1.250	1.024	91.5	614
15	1.0778	1.279	1.043	90.6	616	1.0812	1.236	1.042	91.1	567	1.0802	1.290	1.021	90.8	651	1.0862	1.248	1.032	91.8	599
30	1.0763	1.276	1.048	90.6	607	1.0788	1.231	1.049	91.9	548	1.0788	1.284	1.034	90.7	636	1.0826	1.239	1.040	91.6	514
50	1.0744	1.264	1.054	90.5	581	1.0764	1.222	1.052	90.7	530	1.0756	1.269	1.045	90.6	601	1.0785	1.224	1.043	90.6	548
70	1.0730	1.250	1.050	90.4	570	1.0766	1.212	1.054	91.4	512	1.0734	1.252	.1039	90.6	590	1.0778	1.214	1.044	91.1	532
85	1.0796	1.256	1.090	90.4	517	1.0815	1.217	1.082	90.1	472	1.0807	1.263	1.083	90.6	539	1.0834	1.215	1.068	90.5	494
90	1.0820	1.245	1.096	90.4	491	1.0858	1.211	1.093	89.8	442	1.0829	1.247	1.085	90.6	513	1.0889	1.209	1.079	89.4	466
95 (tip)	1.0853	1.224	1.092	92.3	464	1.0848	1.191	1.098	93.4	394	1.0863	1.220	1.079	91.7	482	1.0878	1.191	1.083	90.9	425
MR	1.0770	1.262	1.053	90.8	581	1.0798	1.222	1.053	91.4	529	1.0786	1.269	1.043	90.9	606	1.0832	1.227	1.042	91.4	554
	254°					284°					314°					344°				
5 (hub)	1.0921	1.312	.999	92.4	714	1.0990	1.227	.998	97.0	621	1.1012	1.220	1.003	100.0	602	1.0960	1.267	1.018	97.9	637
10	1.0879	1.312	1.019	91.8	687	1.0986	1.252	1.007	92.6	642	1.1037	1.224	.992	95.6	631	1.0992	1.282	1.002	93.7	681
15	1.0852	1.305	1.026	91.7	670	1.0963	1.260	1.020	91.4	633	1.1054	1.248	1.003	91.7	646	1.1003	1.299	1.003	90.5	699
30	1.0808	1.288	1.034	91.7	640	1.0889	1.250	1.039	91.0	590	1.1007	1.279	1.039	90.1	629	1.1013	1.352	1.036	88.4	708
50	1.0767	1.275	1.043	90.7	611	1.1975	1.230	1.043	90.9	586	1.0906	1.244	1.043	90.6	579	1.0960	1.316	1.044	88.9	661
70	1.0771	1.262	1.040	90.8	601	-	-	-	-	-	1.0909	1.222	1.047	91.2	542	1.0943	1.273	1.051	89.8	603
85	1.0853	1.257	1.076	91.1	541	1.0831	1.212	1.045	92.6	529	1.1029	1.213	1.063	90.8	504	1.1070	1.258	1.082	89.8	539
90	1.0900	1.251	1.082	88.9	525	1.0933	1.202	1.057	91.3	495	1.1122	1.220	1.081	88.5	485	1.1120	1.258	1.095	89.0	519
95 (tip)	1.0946	1.226	1.080	89.5	492	1.0917	1.199	1.081	88.6	444	1.1105	1.210	1.084	90.1	462	1.1180	1.244	1.092	89.0	504
MR	1.0822	1.278	1.040	91.2	621	-	-	-	-	-	1.0982	1.238	1.038	91.8	579	1.0994	1.296	1.044	90.3	641

1) Test environment: P_o = 2024 psfa, T_o = 518.2°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta_{13} = \tan^{-1}[\tan \beta_{13}/\cos\epsilon]$

Table XXV Flow Distribution at Stator Discharge for Circumferential Distortion, Nominal Stator, Solid Casing

Combination Probe Station 13 90% Speed W $\sqrt{\theta}/\delta$ = 165.67 lb/sec

Circumferential Position % Span	14° T_{13}/To	P_{13}/Po	p_{13}/Po	$90-\beta_{13}$	Vm	44° T_{13}/To	P_{13}/Po	p_{13}/Po	$90-\beta_{13}$	Vm	74° T_{13}/To	P_{13}/Po	p_{13}/Po	$90-\beta_{13}$	Vm	104° T_{13}/To	P_{13}/Po	p_{13}/Po	$90-\beta_{13}$	Vm
5 (hub)	1.1142	1.201	.889	96.4	751	1.0973	1.223	.927	94.7	719	1.1009	1.194	.944	94.7	665	1.1038	1.289	.914	91.8	802
10	1.1225	1.246	.914	91.8	769	1.1001	1.253	.938	92.2	738	1.0955	1.219	.965	90.8	664	1.0998	1.322	.975	91.9	756
15	1.1280	1.272	.937	90.7	767	1.1036	1.266	.951	90.7	735	1.0884	1.217	.974	91.4	645	1.0949	1.328	1.003	91.8	726
30	1.1356	1.316	.976	90.3	761	1.1152	1.284	.982	90.6	716	1.0878	1.207	.984	91.7	620	1.0869	1.289	1.013	91.8	671
50	1.1170	1.282	.970	91.2	729	1.1233	1.293	.978	90.6	732	1.1033	1.202	.993	90.2	605	1.0796	1.232	1.013	91.7	604
70	1.1048	1.270	.976	92.3	706	1.1313	1.323	.961	90.9	777	1.1112	1.203	.997	91.5	600	1.0851	1.205	1.012	91.6	574
85	1.1105	1.271	1.007	91.3	667	1.1407	1.343	1.034	90.8	715	1.1217	1.216	1.031	90.6	568	1.0917	1.193	1.038	91.7	516
90	1.1140	1.266	1.023	90.7	641	1.1434	1.339	1.042	90.7	701	1.1256	1.207	1.042	90.6	538	1.0921	1.184	1.048	91.7	482
95 (tip)	1.1130	1.241	1.026	92.2	606	1.1458	1.302	1.032	92.3	677	1.1251	1.186	1.041	92.5	507	1.0934	1.167	1.041	92.1	468
MR	1.1176	1.273	.968	91.8	723	1.1229	1.297	.980	91.2	734	1.1042	1.206	.992	91.4	610	1.0893	1.248	1.003	91.7	642
			134°					164°					194°					224°		
5 (hub)	1.1080	1.335	.877	92.4	883	1.1159	1.286	.933	94.9	778	1.1137	1.366	.858	91.8	929	1.1209	1.323	.950	93.9	792
10	1.1031	1.359	.933	92.4	836	1.1104	1.311	.954	92.1	774	1.1098	1.393	.896	91.9	905	1.1150	1.334	.953	92.9	796
15	1.1003	1.364	.960	92.3	808	1.1061	1.310	.966	92.1	757	1.1070	1.393	.913	91.9	886	1.1129	1.327	.962	92.5	780
30	1.0948	1.340	.979	92.3	764	1.0996	1.292	.972	92.4	730	1.1005	1.370	.929	91.8	848	1.1050	1.306	.959	92.5	761
50	1.0849	1.294	.994	92.2	700	1.0901	1.255	.963	91.3	703	1.0915	1.316	.947	91.7	781	1.0970	1.265	.947	91.5	736
70	1.0829	1.260	.987	92.1	673	1.0885	1.239	.972	93.0	674	1.0930	1.301	.951	91.6	764	1.0961	1.250	.953	93.0	712
85	1.0890	1.255	1.027	92.1	615	1.0926	1.230	.996	91.5	631	1.0928	1.258	.994	91.5	665	1.0952	1.222	.970	92.1	659
90	1.0906	1.241	1.034	92.0	587	1.0955	1.225	1.012	90.7	602	1.0956	1.250	1.013	91.5	630	1.0991	1.221	.988	90.4	634
95 (tip)	1.0910	1.207	1.019	92.0	567	1.0953	1.194	1.007	92.6	569	1.0990	1.219	1.006	91.5	604	1.0985	1.194	.987	90.5	603
MR	1.0917	1.300	.978	92.2	729	1.0970	1.263	.970	92.3	704	1.0982	1.326	.939	91.7	801	1.1027	1.275	.958	92.4	733
			254°					284°					314°					344°		
5 (hub)	1.1179	1.398	.869	91.9	940	1.1271	1.324	.938	93.7	810	1.1282	1.283	.903	95.2	816	1.1264	1.329	.844	94.3	922
10	1.1138	1.408	.889	91.9	923	1.1200	1.329	.941	93.1	809	1.1308	1.340	.920	91.6	847	1.1306	1.393	.865	91.2	941
15	1.1113	1.407	.904	91.9	907	1.1162	1.330	.949	92.4	798	1.1262	1.341	.944	91.3	818	1.1280	1.408	.903	91.2	916
30	1.1039	1.381	.921	91.9	866	1.1065	1.312	.955	92.2	773	1.1102	1.313	.954	91.8	776	1.1138	1.399	.923	91.2	881
50	1.0957	1.330	.939	91.8	804	1.0962	1.272	.940	91.6	752	1.0983	1.273	.942	91.5	751	1.0981	1.341	.924	91.1	831
70	1.0948	1.309	.944	91.7	779	1.0969	1.258	.945	92.6	733	1.0976	1.267	.949	92.6	736	1.0996	1.338	.944	91.8	806
85	1.0952	1.266	.989	91.6	681	1.0969	1.237	.964	92.4	684	1.0994	1.251	.971	92.0	691	1.1032	1.308	1.000	91.7	712
90	1.0979	1.258	1.011	91.6	643	1.1019	1.231	.979	90.6	659	1.1043	1.243	.982	90.2	669	1.1069	1.304	1.016	90.5	688
95 (tip)	1.1016	1.227	1.007	91.6	613	1.1013	1.203	.979	90.6	627	1.1036	1.209	.987	90.9	622	1.1107	1.257	1.003	90.5	657
MR	1.1014	1.339	.934	91.8	819	1.1044	1.281	.950	92.3	751	1.1074	1.283	.947	92.1	757	1.1088	1.349	.931	91.7	833

1) Test environment: P_o = 1959 psfa, T_o = 528.4°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta_{13} = \tan^{-1} [\tan \beta_{13}/\cos \epsilon]$

Table XXV Flow Distribution at Stator Discharge for Circumferential Distortion, Nominal Stator, Solid Casing

Combination Probe Station 13 90% Speed $W\sqrt{\theta}/\delta$ = 154.67 lb/sec

Circumferential Position % Span	T_{13}/T_o	P_{13}/P_o	P_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	P_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	P_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	P_{13}/P_o	$90-\beta_{13}$	Vm
			14°					44°					74°					104°		
5 (hub)	1.1124	1.222	1.041	102.1	546	1.0920	1.248	1.051	99.4	563	1.1000	1.211	1.030	96.2	553	1.1019	1.307	1.028	93.9	673
10	1.1129	1.197	1.025	99.4	541	1.0924	1.235	1.055	99.5	539	1.0961	1.241	1.050	90.6	565	1.0989	1.331	1.055	93.3	662
15	1.1153	1.200	1.023	94.6	554	1.0935	1.240	1.057	95.2	550	1.0903	1.241	1.061	90.4	545	1.0951	1.335	1.070	91.5	646
30	1.1291	1.299	1.030	88.4	671	1.1052	1.294	1.061	90.0	616	1.0836	1.220	1.062	91.1	512	1.0898	1.319	1.080	91.5	614
50	1.1370	1.341	1.051	89.0	677	1.1212	1.323	1.066	89.9	646	1.0992	1.226	1.071	90.5	510	1.0828	1.274	1.078	91.4	561
70	1.1289	1.320	1.082	91.0	623	1.1315	1.346	1.059	90.4	683	1.1140	1.238	1.073	91.2	527	1.0898	1.256	1.070	91.4	551
85	1.1244	1.283	1.092	93.4	560	1.1443	1.357	1.113	90.4	626	1.1267	1.253	1.102	89.3	503	1.0965	1.264	1.111	91.4	497
90	1.1328	1.280	1.111	91.3	529	1.1468	1.348	1.124	90.4	601	1.1317	1.254	1.118	89.1	477	1.0982	1.261	1.124	91.5	469
95 (tip)	1.1307	1.275	1.119	89.9	508	1.1504	1.321	1.109	90.4	592	1.1313	1.234	1.123	93.8	433	1.0996	1.240	1.113	91.4	457
MR	1.1276	1.293	1.062	91.9	620	1.1207	1.315	1.072	91.6	629	1.1047	1.233	1.071	91.1	520	1.0918	1.287	1.076	91.8	582
			134°					164°					194°					224°		
5 (hub)	1.1053	1.332	.971	92.8	770	1.1128	1.277	.986	95.4	700	1.1078	1.358	.943	92.8	826	1.1175	1.312	.988	94.7	733
10	1.1018	1.358	1.015	92.1	739	1.1080	1.300	1.015	92.0	686	1.1032	1.374	.986	92.8	788	1.1097	1.313	1.005	92.6	713
15	1.0983	1.359	1.041	92.0	708	1.1037	1.303	1.026	92.1	673	1.1017	1.381	1.007	92.7	768	1.1077	1.315	1.014	92.2	703
30	1.0954	1.349	1.051	92.0	685	1.0998	1.293	1.036	92.1	649	1.0998	1.370	1.026	92.7	737	1.1037	1.301	1.019	92.2	681
50	1.0899	1.323	1.056	91.9	651	1.0951	1.275	1.041	90.5	620	1.0930	1.336	1.047	92.6	676	1.0972	1.279	1.024	90.6	652
70	1.0876	1.294	1.045	91.8	633	1.0923	1.272	1.038	91.6	596	1.0915	1.321	1.041	92.5	668	1.0942	1.254	1.025	91.9	629
85	1.0956	1.306	1.093	91.8	582	1.0983	1.264	1.073	90.4	560	1.0966	1.322	1.083	92.5	615	1.0988	1.264	1.058	91.1	583
90	1.0977	1.290	1.092	91.8	562	1.1013	1.260	1.087	90.4	532	1.0991	1.301	1.085	92.5	587	1.1027	1.256	1.069	90.7	555
95 (tip)	1.0996	1.259	1.085	94.2	533	1.1007	1.230	1.084	93.3	492	1.1017	1.259	1.066	92.5	565	1.1017	1.224	1.064	92.3	519
MR	1.0944	1.322	1.048	92.1	662	1.0993	1.274	1.038	91.7	624	1.0975	1.342	1.032	92.6	703	1.1018	1.284	1.024	91.9	655
			254°					284°					314°					344°		
5 (hub)	1.1144	1.395	.926	92.0	876	1.1258	1.303	.973	95.2	746	1.1232	1.254	.959	98.4	712	1.1232	1.329	.944	96.1	803
10	1.1095	1.395	.959	91.9	837	1.1212	1.323	.994	92.6	740	1.1310	1.309	.970	93.3	759	1.1288	1.373	.936	93.1	853
15	1.1066	1.391	.979	91.9	811	1.1163	1.318	1.006	92.1	719	1.1329	1.339	.996	91.4	757	1.1309	1.406	.953	91.2	861
30	1.1013	1.372	1.002	91.9	767	1.1068	1.301	1.013	92.2	689	1.1201	1.330	1.026	90.8	706	1.1237	1.433	1.005	90.0	822
50	1.0965	1.344	1.037	91.8	699	1.1003	1.279	1.018	91.3	658	1.1064	1.283	1.023	91.3	658	1.1115	1.375	1.007	89.9	768
70	1.0929	1.326	1.033	91.8	685	1.0955	1.264	1.016	91.8	642	1.1014	1.266	1.022	92.0	637	1.1073	1.346	1.023	90.8	721
85	1.1012	1.322	1.071	91.7	633	1.1036	1.268	1.050	91.1	600	1.1095	1.272	1.055	91.1	600	1.1168	1.350	1.075	90.7	662
90	1.1035	1.308	1.081	91.7	603	1.1093	1.262	1.065	90.6	572	1.1162	1.272	1.072	90.1	575	1.1214	1.343	1.094	90.6	631
95 (tip)	1.1073	1.267	1.064	91.6	579	1.1083	1.233	1.062	92.1	538	1.1151	1.250	1.074	91.1	543	1.1269	1.310	1.083	90.7	610
MR	1.1010	1.351	1.016	91.8	732	1.1064	1.285	1.017	92.0	667	1.1138	1.289	1.020	92.0	670	1.1175	1.372	1.010	91.1	763

1) Test environment: P_o = 1977 psfa, T_o = 526.4°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta_{13} = \tan^{-1}\left[\tan\beta_{13}/\cos\epsilon\right]$

Table XXV Flow Distribution at Stator Discharge for Circumferential Distortion, Nominal Stator, Solid Casing

Combination Probe Station 13 90% Speed $W\sqrt{\theta}/\delta$ = 143.20 lb/sec

Circumferential Position % Span	T_{13}/T_o	P_{13}/P_o	14° P_{13}/P_o	14° $90-\beta_{13}$	14° Vm	T_{13}/T_o	P_{13}/P_o	44° P_{13}/P_o	44° $90-\beta_{13}$	44° Vm	T_{13}/T_o	P_{13}/P_o	74° P_{13}/P_o	74° $90-\beta_{13}$	74° Vm	T_{13}/T_o	P_{13}/P_o	104° P_{13}/P_o	104° $90-\beta_{13}$	104° Vm
5 (hub)	1.1071	1.205	1.089	106.6	425	1.0884	1.243	1.111	105.3	447	1.0995	1.221	1.083	99.7	481	1.0990	1.319	1.072	96.1	624
10	1.1017	1.152	1.085	103.5	331	1.0854	1.204	1.115	105.3	370	1.0968	1.231	1.082	94.7	497	1.0967	1.332	1.089	96.1	614
15	1.1025	1.142	1.088	98.4	304	1.0856	1.193	1.123	105.3	329	1.0937	1.243	1.092	91.4	497	1.0938	1.335	1.092	92.3	616
30	1.1230	1.249	1.082	92.8	530	1.0983	1.286	1.110	93.4	530	1.0856	1.230	1.100	90.8	461	1.0904	1.332	1.116	92.2	579
50	1.1368	1.346	1.097	88.2	633	1.1190	1.343	1.116	90.7	600	1.0977	1.245	1.107	90.3	474	1.0854	1.302	1.114	92.2	541
70	1.1404	1.348	1.123	88.9	601	1.1305	1.370	1.106	90.7	646	1.1129	1.257	1.106	91.1	498	1.0911	1.296	1.105	92.1	549
85	1.1386	1.304	1.130	91.9	533	1.1452	1.376	1.143	90.6	606	1.1277	1.274	1.136	89.1	477	1.0997	1.312	1.151	92.1	502
90	1.1434	1.299	1.146	90.5	501	1.1480	1.374	1.162	90.6	579	1.1313	1.276	1.153	88.7	448	1.1019	1.304	1.156	92.1	481
95 (tip)	1.1422	1.296	1.159	90.6	474	1.1507	1.351	1.149	90.9	569	1.1311	1.250	1.159	94.2	387	1.1042	1.286	1.144	93.1	475
MR	1.1314	1.297	1.107	92.0	557	1.1199	1.329	1.119	93.2	577	1.1051	1.248	1.108	91.5	479	1.0929	1.313	1.112	92.8	560
			134°					164°					194°					224°		
5 (hub)	1.1038	1.332	1.033	94.0	692	1.1104	1.279	1.031	95.8	640	1.1083	1.364	.995	92.8	771	1.1171	1.291	1.018	96.7	671
10	1.0999	1.352	1.059	92.7	679	1.1049	1.297	1.053	91.7	631	1.1024	1.366	1.038	92.8	719	1.1127	1.315	1.038	92.1	672
15	1.0976	1.355	1.068	91.3	670	1.1025	1.298	1.064	91.7	616	1.0996	1.369	1.061	92.8	692	1.1080	1.314	1.051	91.3	653
30	1.0943	1.350	1.073	91.2	657	1.1001	1.293	1.074	91.5	595	1.0981	1.363	1.073	92.7	671	1.1040	1.300	1.065	91.8	617
50	1.0918	1.341	1.082	91.2	636	1.0972	1.285	1.079	90.4	577	1.0954	1.351	1.084	92.6	645	1.0988	1.279	1.065	90.8	590
70	1.0917	1.331	1.080	91.1	627	1.0975	1.277	1.082	91.0	563	1.0943	1.335	1.077	92.5	636	1.1055	1.274	1.064	91.1	586
85	1.0996	1.323	1.118	91.0	568	1.1060	1.276	1.111	90.6	517	1.1023	1.339	1.115	92.5	592	1.1100	1.271	1.088	90.5	547
90	1.1024	1.311	1.125	91.0	541	1.1116	1.272	1.125	90.1	489	1.1051	1.332	1.127	92.5	566	1.1158	1.272	1.106	89.4	521
95 (tip)	1.1063	1.287	1.119	92.8	519	1.1107	1.251	1.125	92.5	456	1.1098	1.300	1.109	92.5	552	1.1148	1.257	1.110	90.8	494
MR	1.0959	1.336	1.080	91.5	635	1.1019	1.284	1.078	91.5	578	1.0992	1.350	1.074	92.6	658	1.1058	1.286	1.063	91.7	603
			254°					284°					314°					344°		
5 (hub)	1.1179	1.401	.982	93.8	820	1.1186	1.243	1.016	101.7	612	1.1254	1.259	1.034	104.8	600	1.1221	1.331	1.043	101.4	687
10	1.1126	1.406	1.030	93.8	767	1.1179	1.250	1.007	96.5	641	1.1196	1.207	1.018	100.0	567	1.1222	1.315	1.047	101.4	665
15	1.1091	1.401	1.038	92.5	753	1.1190	1.282	1.020	93.4	663	1.1217	1.220	1.022	95.3	584	1.1223	1.308	1.048	97.6	655
30	1.1047	1.375	1.061	92.4	701	1.1154	1.321	1.059	90.7	652	1.1302	1.359	1.059	89.5	696	1.1305	1.446	1.034	89.1	803
50	1.0982	1.347	1.072	92.3	657	1.1075	1.292	1.060	90.7	615	1.1201	1.322	1.069	90.5	641	1.1262	1.432	1.048	89.0	774
70	1.1018	1.339	1.070	92.3	653	1.1103	1.277	1.068	91.7	586	1.1199	1.300	1.079	91.1	601	1.1263	1.375	1.074	90.2	692
85	1.1134	1.334	1.105	92.2	603	1.1206	1.255	1.081	90.8	554	1.1308	1.289	1.100	91.0	559	1.1389	1.358	1.111	90.1	629
90	1.1162	1.336	1.127	92.2	574	1.1295	1.273	1.105	88.9	527	1.1390	1.292	1.120	89.8	532	1.1422	1.357	1.133	90.0	599
95 (tip)	1.1216	1.312	1.116	92.2	561	1.1283	1.259	1.110	90.8	499	1.1377	1.279	1.124	91.4	506	1.1476	1.339	1.123	90.0	591
MR	1.1068	1.360	1.062	92.5	686	1.1149	1.283	1.058	92.3	610	1.1251	1.302	1.068	92.4	620	1.1289	1.388	1.063	91.5	719

1) Test environment: P_o = 1993 psfa, T_o = 529.3°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta_{13} = \tan^{-1}\left[\tan\beta_{13}/\cos\epsilon\right]$

Table XXV Flow Distribution at Stator Discharge for Circumferential Distortion, Nominal Stator, Solid Casing

Combination Probe Station 13 95% Speed W $\sqrt{\theta}/\delta$ = 173.11 lb/sec

Circumferential Position % Span	14°					44°					74°					104°				
	T_{13}/T_o	P_{13}/P_o	p_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	p_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	p_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	p_{13}/P_o	$90-\beta_{13}$	Vm
5 (hub)	1.1292	1.226	.889	96.9	780	1.1065	1.246	.913	94.7	763	1.1103	1.202	.939	95.0	684	1.1144	1.315	.917	93.1	823
10	1.1369	1.272	.915	92.0	797	1.1096	1.275	.921	92.0	783	1.1043	1.233	.960	90.9	689	1.1101	1.356	.951	91.2	817
15	1.1415	1.300	.942	90.5	791	1.1131	1.291	.934	90.4	782	1.0973	1.235	.973	91.1	670	1.1053	1.366	.986	91.2	782
30	1.1479	1.345	.984	89.9	782	1.1258	1.313	.973	90.3	759	1.0944	1.224	.982	91.7	644	1.0948	1.316	1.004	91.1	712
50	1.1258	1.306	.970	91.2	756	1.1333	1.321	.967	90.2	777	1.1127	1.219	.990	90.1	632	1.0865	1.251	1.011	91.0	632
70	1.1163	1.304	.982	91.7	735	1.1446	1.350	.967	91.0	805	1.1226	1.223	.999	91.7	626	1.0921	1.215	1.012	90.9	588
85	1.1259	1.309	1.014	91.7	702	1.1593	1.381	1.039	91.0	751	1.1331	1.229	1.034	90.7	584	1.0988	1.198	1.042	91.7	518
90	1.1296	1.298	1.025	90.9	678	1.1604	1.367	1.040	91.0	737	1.1378	1.221	1.045	90.3	555	1.0992	1.189	1.053	91.8	483
95 (tip)	1.1286	1.267	1.026	92.3	641	1.1608	1.332	1.039	93.5	702	1.1371	1.200	1.044	92.2	524	1.1000	1.171	1.046	91.7	467
MR	1.1300	1.303	.973	91.7	751	1.1352	1.326	.974	91.1	772	1.1139	1.222	.992	91.4	634	1.0971	1.269	1.000	91.4	671
	134°					164°					194°					224°				
5 (hub)	1.1201	1.373	.882	93.2	910	1.1293	1.319	.943	94.7	800	1.1274	1.424	.870	92.2	960	1.1334	1.360	.971	94.0	803
10	1.1157	1.398	.912	91.9	894	1.1231	1.344	.969	92.3	790	1.1230	1.446	.901	92.2	940	1.1262	1.369	.968	93.2	811
15	1.1122	1.409	.945	91.9	864	1.1190	1.346	.979	91.8	779	1.1191	1.444	.919	92.2	919	1.1243	1.364	.977	92.9	797
30	1.1058	1.379	.963	91.9	819	1.1110	1.323	.979	92.2	755	1.1116	1.415	.935	92.2	879	1.1152	1.342	.973	92.2	780
50	1.0938	1.321	.986	91.7	738	1.1002	1.281	.968	91.2	727	1.1016	1.354	.927	90.8	839	1.1058	1.298	.951	91.0	765
70	1.0912	1.280	.987	91.7	697	1.0994	1.261	.970	93.1	703	1.1022	1.324	.941	92.2	798	1.1071	1.280	.955	92.8	743
85	1.0978	1.269	1.027	92.0	633	1.1031	1.247	.997	91.8	652	1.1044	1.286	.998	92.1	693	1.1075	1.247	.967	92.1	696
90	1.0996	1.249	1.032	92.0	603	1.062	1.241	1.011	91.0	627	1.1066	1.270	1.010	92.0	661	1.1124	1.247	.982	90.3	677
95 (tip)	1.1010	1.216	1.022	92.5	576	1.1057	1.211	1.011	92.8	588	1.1089	1.232	.998	92.0	635	1.1119	1.225	.988	90.9	643
MR	1.1016	1.329	.971	92.0	766	1.1082	1.290	.975	92.3	728	1.1092	1.364	.936	91.9	838	1.1136	1.307	.965	92.2	759
	254°					284°					314°					344°				
5 (hub)	1.1318	1.453	.888	91.9	962	1.1406	1.359	.960	94.4	817	1.1434	1.310	.908	95.8	838	1.1401	1.351	.830	94.6	958
10	1.1263	1.461	.893	91.8	959	1.1321	1.366	.961	93.9	819	1.1451	1.370	.927	92.2	868	1.1464	1.431	.875	91.0	968
15	1.1230	1.457	.905	91.8	943	1.1283	1.369	.970	93.1	811	1.1391	1.375	.952	91.7	840	1.1432	1.454	.898	91.0	958
30	1.1153	1.434	.928	91.9	901	1.1182	1.347	.966	91.7	794	1.1232	1.353	.970	91.2	797	1.1282	1.451	.926	91.0	920
50	1.1055	1.376	.916	91.0	870	1.1080	1.308	.945	91.2	782	1.1116	1.317	.951	90.8	785	1.1096	1.388	.926	91.0	869
70	1.1064	1.346	.927	92.0	835	1.1090	1.295	.950	92.7	764	1.1104	1.308	.958	92.4	767	1.1114	1.382	.937	91.5	853
85	1.1088	1.303	.981	91.9	734	1.1110	1.265	.961	92.0	723	1.1140	1.289	.974	91.7	731	1.1196	1.363	.994	91.4	776
90	1.1119	1.294	1.000	90.9	702	1.1160	1.263	.978	90.1	700	1.1203	1.284	.984	90.1	715	1.1221	1.346	1.014	91.3	738
95 (tip)	1.1166	1.265	.996	91.0	678	1.1151	1.241	.977	90.1	678	1.1196	1.250	.984	90.8	679	1.1244	1.297	1.001	91.4	706
MR	1.1133	1.384	.928	91.7	865	1.1168	1.316	.958	92.2	776	1.1210	1.321	.956	91.9	786	1.1222	1.394	.928	91.5	876

1) Test environment: P_o = 1951 psfa, T_o = 524.1°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta_{13} = \tan^{-1}\left[\tan \beta_{13}/\cos\epsilon\right]$

Table XXV Flow Distribution at Stator Discharge for Circumferential Distortion, Nominal Stator, Solid Casing

Combination Probe Station 13 95% Speed $W\sqrt{\theta}/\delta$ = 161.23 lb/sec

Circumferential Position % Span	T_{13}/To	P_{13}/Po	14° P_{13}/Po	$90-\beta_{13}$	Vm	T_{13}/To	P_{13}/Po	44° P_{13}/Po	$90-\beta_{13}$	Vm	T_{13}/To	P_{13}/Po	74° P_{13}/Po	$90-\beta_{13}$	Vm	T_{13}/To	P_{13}/Po	104° P_{13}/Po	$90-\beta_{13}$	Vm
5 (hub)	1.1268	1.242	1.067	104.2	530	1.1020	1.266	1.073	101.9	552	1.1108	1.229	1.048	96.6	551	1.1122	1.339	1.046	95.2	624
10	1.1240	1.195	1.050	101.4	494	1.1000	1.231	1.077	102.1	496	1.1076	1.260	1.064	91.4	570	1.1095	1.363	1.056	93.1	696
15	1.1253	1.183	1.048	96.4	487	1.1006	1.226	1.080	98.3	489	1.1027	1.264	1.076	90.2	556	1.1065	1.371	1.074	90.2	681
30	1.1448	1.326	1.045	88.9	684	1.1144	1.320	1.068	89.7	639	1.0924	1.243	1.082	90.9	515	1.1007	1.360	1.096	90.8	640
50	1.1508	1.372	1.082	88.7	685	1.1364	1.368	1.080	89.5	679	1.1100	1.251	1.092	90.5	514	1.0915	1.311	1.092	90.6	588
70	1.1377	1.340	1.096	92.0	630	1.1437	1.380	1.076	90.9	700	1.1266	1.265	1.092	91.1	536	1.0980	1.289	1.090	91.1	566
85	1.1400	1.321	1.114	92.9	580	1.1594	1.403	1.136	90.9	650	1.1411	1.282	1.122	89.4	516	1.1054	1.296	1.131	91.3	512
90	1.1535	1.325	1.138	90.7	552	1.1628	1.400	1.153	90.8	625	1.1469	1.283	1.141	89.5	485	1.1073	1.290	1.143	91.3	484
95 (tip)	1.1513	1.322	1.145	89.0	538	1.676	1.365	1.132	90.9	615	1.1464	1.268	1.147	93.8	448	1.1093	1.270	1.132	91.7	473
MR	1.1413	1.320	1.082	92.2	626	1.1337	1.349	1.089	92.0	647	1.1165	1.258	1.091	91.1	527	1.1012	1.322	1.092	91.5	604
			134°					164°					194°					224°		
5 (hub)	1.1159	1.366	.979	93.5	793	1.1256	1.308	1.001	95.8	715	1.1190	1.402	.949	93.0	856	1.1302	1.346	1.006	95.2	746
10	1.1125	1.395	1.009	91.9	782	1.1201	1.335	1.030	91.7	706	1.1145	1.417	.995	93.1	816	1.1219	1.350	1.020	92.7	733
15	1.1094	1.400	1.030	90.9	762	1.1159	1.339	1.044	91.7	692	1.1128	1.425	1.003	92.2	813	1.1191	1.352	1.029	92.3	722
30	1.1072	1.393	1.046	90.9	736	1.1122	1.329	1.053	91.7	667	1.1111	1.414	1.021	92.1	784	1.1160	1.338	1.037	91.9	699
50	1.1013	1.364	1.060	90.7	690	1.1066	1.308	1.057	90.7	639	1.1047	1.379	1.047	92.1	722	1.1082	1.312	1.035	90.8	672
70	1.0994	1.334	1.060	90.7	661	1.1038	1.290	1.059	91.5	613	1.1015	1.358	1.050	92.1	696	1.1050	1.299	1.039	91.7	653
85	1.1066	1.336	1.102	90.6	608	1.1100	1.297	1.094	90.4	573	1.1096	1.356	1.087	92.0	650	1.1120	1.303	1.072	91.1	613
90	1.1097	1.315	1.102	90.6	584	1.1148	1.291	1.106	91.0	548	1.1133	1.342	1.096	91.9	624	1.1171	1.292	1.086	90.6	581
95 (tip)	1.1123	1.287	1.101	94.3	547	1.1139	1.259	1.104	94.2	505	1.1169	1.300	1.076	91.9	605	1.1160	1.261	1.082	92.5	545
MR	1.1058	1.361	1.052	91.2	698	1.1113	1.309	1.056	91.7	642	1.1089	1.383	1.034	92.2	741	1.1137	1.320	1.040	91.9	676
			254°					284°					314°					344°		
5 (hub)	1.1275	1.436	.933	92.3	902	1.1380	1.318	.923	96.7	749	1.1351	1.270	.975	101.5	702	1.1373	1.361	.961	98.4	810
10	1.1218	1.436	.972	92.3	859	1.1346	1.350	1.001	92.9	760	1.1397	1.289	.965	96.7	745	1.1423	1.392	.932	94.7	875
15	1.1196	1.435	.994	92.3	833	1.1309	1.354	1.020	92.0	740	1.1440	1.329	.985	93.7	763	1.1432	1.419	.943	92.3	886
30	1.1134	1.416	1.017	92.2	790	1.1213	1.340	1.035	91.8	705	1.1417	1.386	1.051	90.5	736	1.1392	1.481	1.008	89.3	860
50	1.1069	1.381	1.031	91.6	743	1.1121	1.312	1.032	91.2	678	1.1240	1.331	1.043	91.0	686	1.1270	1.421	1.006	89.6	813
70	1.1044	1.371	1.030	91.5	734	1.1088	1.298	1.033	91.9	660	1.1187	1.311	1.044	91.4	663	1.1245	1.401	1.031	90.3	768
85	1.1137	1.372	1.085	91.5	670	1.1182	1.308	1.068	90.8	626	1.1258	1.314	1.075	91.4	625	1.1358	1.400	1.087	90.2	703
90	1.1170	1.352	1.091	91.5	643	1.1246	1.302	1.084	90.4	597	1.1359	1.311	1.093	89.9	599	1.1431	1.394	1.111	90.2	668
95 (tip)	1.1215	1.310	1.071	91.5	625	1.1231	1.270	1.083	91.8	558	1.1338	1.292	1.098	90.4	568	1.1499	1.361	1.103	90.1	645
MR	1.1129	1.394	1.023	91.8	766	1.1198	1.318	1.033	92.1	684	1.1304	1.326	1.038	92.4	689	1.1336	1.416	1.016	91.0	799

1) Test environment: P_o = 1974 psfa, T_o = 521°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta_{13} = \tan^{-1}\left[\tan \beta_{13}/\cos\epsilon\right]$

Table XXV Flow Distribution at Stator Discharge for Circumferential Distortion, Nominal Stator, Solid Casing

Combination Probe Station 13 95% Speed W $\sqrt{\theta}/\delta$ = 148.59 lb/sec

Circumferential Position % Span	T_{13}/T_o	P_{13}/P_o	14° P_{13}/P_o	14° $90-\beta_{13}$	14° Vm	44° T_{13}/T_o	44° P_{13}/P_o	44° P_{13}/P_o	44° $90-\beta_{13}$	44° Vm	74° T_{13}/T_o	74° P_{13}/P_o	74° P_{13}/P_o	74° $90-\beta_{13}$	74° Vm	104° T_{13}/T_o	104° P_{13}/P_o	104° P_{13}/P_o	104° $90-\beta_{13}$	104° Vm
5 (hub)	1.1182	1.202	1.123	110.1	343	1.0977	1.258	1.128	106.7	438	1.1092	1.241	1.106	101.7	463	1.1102	1.353	1.091	97.4	637
10	1.1110	1.148	1.112	105.3	243	1.0940	1.212	1.134	106.6	342	1.1070	1.242	1.102	96.6	478	1.1078	1.357	1.099	97.3	630
15	1.1123	1.140	1.110	99.0	228	1.0942	1.199	1.142	106.6	296	1.1043	1.256	1.107	92.5	493	1.1056	1.365	1.101	92.6	641
30	1.1331	1.234	1.111	94.7	455	1.1078	1.298	1.129	94.6	518	1.0949	1.259	1.120	90.1	474	1.1014	1.372	1.127	91.0	613
50	1.1517	1.381	1.124	87.9	640	1.1322	1.387	1.124	89.6	642	1.1082	1.273	1.129	90.3	483	1.0975	1.346	1.127	91.0	581
70	1.1560	1.394	1.155	89.3	614	1.1436	1.414	1.108	89.5	692	1.1254	1.289	1.129	91.7	509	1.1014	1.337	1.117	90.9	586
85	1.1522	1.342	1.155	94.0	548	1.1590	1.423	1.162	89.9	637	1.1412	1.307	1.160	89.7	488	1.1110	1.354	1.169	90.9	534
90	1.1591	1.346	1.177	91.3	521	1.1637	1.431	1.188	89.9	613	1.1457	1.310	1.178	89.2	461	1.1138	1.340	1.171	90.9	512
95 (tip)	1.1575	1.351	1.195	90.4	500	1.1679	1.399	1.166	89.8	608	1.1453	1.286	1.188	94.0	399	1.1170	1.320	1.167	93.4	489
MR	1.1463	1.330	1.138	92.6	557	1.1331	1.368	1.132	92.7	609	1.1165	1.276	1.131	91.9	486	1.1041	1.352	1.126	92.0	591
			134°					164°					194°					224°		
5 (hub)	1.1135	1.865	1.038	94.5	720	1.1220	1.311	1.046	96.2	657	1.1202	1.410	.994	92.6	814	1.1300	1.318	1.039	98.2	674
10	1.1099	1.389	1.057	92.7	720	1.1166	1.329	1.068	92.3	649	1.1147	1.414	1.042	92.5	760	1.1255	1.337	1.045	93.9	689
15	1.1072	1.393	1.072	90.8	705	1.1146	1.332	1.078	91.2	638	1.1115	1.415	1.066	92.5	733	1.1218	1.346	1.061	91.5	678
30	1.1052	1.392	1.087	90.8	685	1.1104	1.325	1.089	91.4	614	1.1092	1.405	1.080	92.5	707	1.1166	1.333	1.079	91.5	639
50	1.1041	1.387	1.097	90.7	668	1.1083	1.318	1.096	90.3	595	1.1065	1.391	1.088	91.6	684	1.1123	1.319	1.083	90.6	616
70	1.1030	1.373	1.095	91.0	656	1.1097	1.315	1.103	91.1	582	1.1072	1.380	1.080	91.5	683	1.1126	1.307	1.080	91.4	605
85	1.1135	1.370	1.141	90.9	595	1.1192	1.317	1.133	90.2	542	1.1167	1.383	1.124	91.4	632	1.1264	1.311	1.111	90.5	570
90	1.1171	1.361	1.151	90.9	570	1.1264	1.310	1.146	89.7	513	1.1216	1.373	1.138	91.4	604	1.1332	1.311	1.129	89.2	543
95 (tip)	1.1218	1.329	1.136	91.2	554	1.1251	1.286	1.144	91.6	480	1.1272	1.341	1.120	91.4	594	1.1317	1.294	1.131	91.0	516
MR	1.1075	1.379	1.094	91.3	664	1.1137	1.319	1.096	91.4	597	1.1116	1.393	1.079	91.9	699	1.1194	1.320	1.080	91.8	623
			254°					284°					314°					344°		
5 (hub)	1.1300	1.429	.985	96.2	837	1.1282	1.239	1.042	105.3	562	1.1362	1.264	1.061	107.1	562	1.1345	1.357	1.061	102.7	676
10	1.1271	1.441	.994	94.0	838	1.1228	1.209	1.028	99.1	555	1.1282	1.198	1.040	101.9	516	1.1328	1.323	1.066	102.6	633
15	1.1248	1.443	1.022	92.4	811	1.1270	1.237	1.032	94.6	594	1.1295	1.196	1.044	97.1	514	1.1327	1.307	1.068	98.0	622
30	1.1184	1.423	1.067	92.3	741	1.1332	1.362	1.072	90.3	683	1.1481	1.383	1.071	90.5	710	1.1439	1.474	1.033	89.4	830
50	1.1150	1.401	1.090	92.2	693	1.1262	1.339	1.079	90.6	648	1.1415	1.382	1.097	89.6	674	1.1406	1.463	1.062	89.3	789
70	1.1162	1.388	1.083	92.1	689	1.1288	1.317	1.086	91.7	615	1.1401	1.347	1.105	91.7	624	1.1431	1.418	1.074	89.4	738
85	1.1338	1.387	1.124	92.0	641	1.1409	1.306	1.108	91.1	571	1.1503	1.335	1.127	91.1	581	1.1596	1.415	1.128	89.7	673
90	1.1397	1.390	1.136	89.6	630	1.1531	1.315	1.129	89.6	553	1.1609	1.338	1.149	90.2	555	1.1649	1.415	1.150	89.7	647
95 (tip)	1.1458	1.361	1.121	89.6	620	1.1511	1.301	1.137	90.4	520	1.1595	1.327	1.153	91.1	532	1.1702	1.392	1.139	90.1	638
MR	1.1227	1.407	1.071	92.6	723	1.1318	1.313	1.078	92.6	621	1.1433	1.339	1.093	92.8	632	1.1445	1.423	1.073	91.5	742

1) Test environment: P_o = 1991 psfa, T_o = 522.4°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta_{13} = \tan^{-1} [\tan \beta_{13}/\cos \epsilon]$

Table XXVI Flow Distribution at Stator Discharge for Circumferential Distortion, 10 Degree Closed Stator, Solid Casing

Combination Probe Station 13 95% Speed $W\sqrt{\theta}/\delta$ = 161.15 lb/sec

Circumferential Position % Span	T_{13}/To	P_{13}/Po	14° P_{13}/Po	$90-\beta_{13}$	Vm	T_{13}/To	P_{13}/Po	44° P_{13}/Po	$90-\beta_{13}$	Vm	T_{13}/To	P_{13}/Po	74° P_{13}/Po	$90-\beta_{13}$	Vm	T_{13}/To	P_{13}/Po	104° P_{13}/Po	$90-\beta_{13}$	Vm
5 (hub)	1.0964	1.057	.955	84.5	441	1.0874	1.062	.973	85.9	406	1.1004	1.060	.942	85.1	475	1.1080	1.120	.936	93.3	587
10	1.1179	1.167	.973	88.1	594	1.0837	1.111	.986	86.0	475	1.1053	1.139	.960	89.6	573	1.1111	1.183	.957	93.7	637
15	1.1246	1.168	.987	86.6	573	1.0829	1.119	1.002	86.0	458	1.0976	1.141	.967	86.3	562	1.0994	1.124	.976	93.8	520
30	1.1350	1.154	1.003	81.4	521	1.1015	1.286	.976	83.9	718	1.0917	1.251	.982	83.2	670	1.1007	1.287	.944	84.8	759
50	1.1426	1.293	.991	82.1	714	1.1207	1.335	.980	81.4	760	1.0995	1.247	.990	81.2	654	1.0898	1.312	.973	81.8	737
70	1.1283	1.335	1.015	82.5	721	1.1297	1.353	.986	82.8	775	1.1171	1.253	.998	83.1	657	1.0876	1.279	.982	82.4	695
85	1.1306	1.337	1.050	82.8	680	1.1446	1.369	1.053	82.0	711	1.1326	1.271	1.038	81.7	623	1.0965	1.285	1.035	82.3	635
90	1.1392	1.328	1.063	81.4	654	1.1483	1.358	1.061	81.0	690	1.1377	1.264	1.048	81.3	600	1.0992	1.270	1.043	82.3	607
95 (tip)	1.1368	1.291	1.058	80.8	617	1.1519	1.296	1.047	81.0	645	1.1373	1.226	1.048	84.4	555	1.1035	1.218	1.028	82.3	565
MR	1.1310	1.264	1.010	82.8	657	1.1205	1.305	.998	82.8	712	1.1092	1.229	.995	82.9	632	1.0954	1.263	.979	84.5	689
			134°					164°					194°					224°		
5 (hub)	1.1134	1.142	.922	95.1	639	1.1041	.993	.921	85.7	380	1.1196	1.146	.905	96.0	671	1.1027	.979	.906	85.1	387
10	1.1117	1.150	.941	95.5	618	1.1186	1.115	.939	100.4	567	1.1194	1.167	.925	96.5	665	1.1196	1.127	.927	101.1	603
15	1.0962	1.053	.965	95.7	409	1.1029	1.037	.945	93.4	423	1.1018	1.040	.956	96.8	402	1.1046	1.041	.934	94.1	456
30	1.0977	1.131	.963	84.1	553	1.1022	1.070	.953	77.1	462	1.1014	1.067	.963	81.7	440	1.1003	1.044	.948	75.2	418
50	1.1010	1.377	.936	81.7	838	1.1103	1.328	.967	82.1	767	1.1110	1.405	.912	82.4	889	1.1108	1.329	.956	82.8	783
70	1.0984	1.350	.954	82.4	797	1.1087	1.322	.987	83.1	738	1.1087	1.391	.928	82.4	861	1.1065	1.340	.981	83.0	761
85	1.1083	1.352	1.015	82.3	731	1.1167	1.322	1.022	82.2	696	1.1173	1.389	.993	82.5	791	1.1124	1.340	1.013	83.0	723
90	1.1117	1.334	1.039	82.3	684	1.1236	1.308	1.029	81.5	674	1.1213	1.374	1.011	81.7	758	1.1197	1.334	1.024	81.7	705
95 (tip)	1.1195	1.273	1.024	81.9	643	1.1222	1.255	1.025	81.5	619	1.1310	1.316	1.011	81.4	708	1.1179	1.288	1.019	82.0	664
MR	1.1031	1.291	.963	84.4	740	1.1105	1.252	.980	82.9	679	1.1121	1.317	.943	84.3	790	1.1090	1.260	.972	83.1	698
			254°					284°					314°					344°		
5 (hub)	1.1212	1.134	.899	94.9	667	1.1105	.995	.898	87.1	445	1.1061	1.001	.902	86.6	449	1.1129	1.097	.909	89.9	603
10	1.1257	1.208	.916	95.5	726	1.1289	1.137	.924	98.6	630	1.1277	1.137	.929	96.5	624	1.1371	1.247	.937	90.7	746
15	1.1076	1.062	.942	92.8	481	1.1165	1.059	.931	92.4	500	1.1289	1.099	.941	92.5	552	1.1376	1.198	.969	90.0	646
30	1.1037	1.050	.960	79.0	409	1.1068	1.048	.945	74.0	430	1.1142	1.063	.955	73.9	440	1.1197	1.110	.974	79.8	497
50	1.1164	1.399	.895	83.0	907	1.1214	1.309	.947	83.9	781	1.1217	1.319	.956	83.0	777	1.1242	1.391	.911	82.2	885
70	1.1136	1.407	.927	82.9	876	1.1172	1.349	.983	83.0	770	1.1182	1.350	.989	82.2	763	1.1183	1.401	.940	82.1	858
85	1.1212	1.403	.985	82.7	813	1.1241	1.347	1.012	82.7	736	1.1236	1.349	1.019	82.9	728	1.1280	1.401	.999	81.9	797
90	1.1264	1.392	1.001	81.9	786	1.1313	1.340	1.023	82.0	717	1.1309	1.344	1.027	81.9	714	1.1333	1.388	1.021	81.6	762
95 (tip)	1.1359	1.330	.997	81.6	740	1.1295	1.292	1.014	82.1	680	1.1290	1.292	1.022	82.0	669	1.1422	1.319	1.019	81.4	703
MR	1.1164	1.322	.935	84.2	805	1.1191	1.258	.968	83.2	705	1.1206	1.263	.975	82.8	700	1.1238	1.320	.951	83.1	786

1) Test environment: P_o = 1973 psfa, T_o = 522.5°R
2) Vm calculation is based on standard-day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta_{13} = \tan^{-1}[\tan \beta_{13}/\cos\epsilon]$

Table XXVI Flow Distribution at Stator Discharge for Circumferential Distortion, 10 Degree Closed Stator, Solid Casing

Combination Probe Station 13 95% Speed $W\sqrt{\theta}/\delta$ = 154.14 lb/sec

Circumferential Position % Span	T_{13}/T_o	P_{13}/P_o	14° p_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	44° p_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	74° p_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	104° p_{13}/P_o	$90-\beta_{13}$	Vm
5 (hub)	1.0990	1.112	1.078	81.4	245	1.0931	1.140	1.098	81.0	266	1.1011	1.114	1.062	88.4	305	1.1077	1.186	1.047	88.6	192
10	1.1009	1.131	1.088	87.4	274	1.0875	1.117	1.080	80.9	222	1.0998	1.137	1.071	87.2	341	1.1003	1.155	1.074	88.6	375
15	1.1076	1.138	1.096	82.7	271	1.0873	1.126	1.097	81.0	222	1.0961	1.152	1.073	83.0	366	1.1019	1.211	1.067	86.4	493
30	1.1284	1.207	1.096	79.3	428	1.1058	1.280	1.086	81.3	556	1.0944	1.270	1.091	82.1	533	1.1025	1.378	1.073	83.5	684
50	1.1511	1.400	1.117	80.3	660	1.1289	1.363	1.101	81.2	638	1.1045	1.273	1.099	80.9	525	1.0957	1.342	1.086	81.9	626
70	1.1468	1.380	1.131	82.9	623	1.1387	1.384	1.090	81.9	677	1.1213	1.284	1.093	82.7	556	1.0934	1.316	1.075	81.8	613
85	1.1419	1.328	1.140	84.9	549	1.1550	1.392	1.142	81.9	623	1.1371	1.302	1.130	81.6	525	1.1039	1.328	1.130	82.1	552
90	1.1505	1.333	1.160	82.7	525	1.1589	1.387	1.159	81.8	595	1.1421	1.300	1.144	81.2	500	1.1077	1.313	1.136	82.1	524
95 (tip)	1.1483	1.323	1.168	82.3	496	1.1622	1.339	1.144	81.9	559	1.1419	1.262	1.144	83.4	441	1.1133	1.271	1.125	82.1	483
MR	1.1401	1.322	1.121	82.0	566	1.1306	1.339	1.106	81.5	605	1.1132	1.261	1.100	82.4	512	1.0999	1.315	1.086	83.1	601
			134°					164°					194°					224°		
5 (hub)	1.1121	1.192	1.035	90.4	524	1.1105	1.104	1.039	87.9	342	1.1177	1.207	1.020	92.7	572	1.1131	1.093	1.019	86.3	371
10	1.1034	1.140	1.060	89.1	376	1.1100	1.129	1.048	91.0	381	1.1118	1.181	1.035	91.5	506	1.1233	1.185	1.040	94.2	505
15	1.1034	1.178	1.058	85.1	455	1.1033	1.115	1.054	82.2	327	1.1076	1.174	1.041	85.8	480	1.1138	1.140	1.043	87.9	417
30	1.1093	1.401	1.028	83.4	760	1.1155	1.283	1.056	83.3	609	1.1149	1.384	1.013	83.6	764	1.1169	1.231	1.048	81.6	553
50	1.1063	1.396	1.061	81.0	712	1.1107	1.344	1.075	80.9	646	1.1109	1.419	1.034	80.6	764	1.1141	1.351	1.066	80.5	665
70	1.1042	1.370	1.069	82.5	680	1.1114	1.331	1.082	82.4	625	1.1093	1.398	1.058	82.9	722	1.1130	1.339	1.077	82.2	641
85	1.1158	1.382	1.121	82.5	630	1.1220	1.340	1.121	8.16	584	1.1227	1.407	1.106	81.7	675	1.1241	1.345	1.111	82.2	604
90	1.1212	1.370	1.124	81.3	613	1.1303	1.333	1.133	80.0	556	1.1269	1.392	1.113	80.6	651	1.1322	1.341	1.127	80.1	576
95 (tip)	1.1267	1.311	1.108	81.2	567	1.1291	1.288	1.126	81.7	510	1.1332	1.329	1.103	80.6	597	1.1309	1.305	1.122	80.9	539
MR	1.1090	1.356	1.067	83.1	671	1.1144	1.299	1.081	824	591	1.1145	1.369	1.050	83.2	707	1.1173	1.295	1.072	82.4	600
			254°					284°					314°					344°		
5 (hub)	1.1214	1.200	1.009	90.5	581	1.1165	1.099	1.017	86.0	391	1.1137	1.101	1.027	84.1	368	1.1158	1.194	1.041	87.5	516
10	1.1214	1.235	1.024	90.5	604	1.1271	1.174	1.033	91.7	502	1.1284	1.174	1.043	89.8	484	1.1210	1.199	1.071	87.5	471
15	1.1151	1.202	1.032	85.4	542	1.1254	1.162	1.040	89.3	469	1.1351	1.185	1.053	88.8	485	1.1224	1.189	1.074	82.8	445
30	1.1178	1.335	1.019	82.4	712	1.1208	1.217	1.047	81.1	535	1.1310	1.211	1.060	80.2	504	1.1390	1.402	1.031	83.0	766
50	1.1141	1.422	1.025	80.1	776	1.1194	1.352	1.063	80.3	671	1.1292	1.371	1.076	80.2	676	1.1296	1.433	1.064	80.8	748
70	1.1122	1.396	1.045	82.9	735	1.1196	1.344	1.073	82.4	654	1.1255	1.358	1.082	82.6	658	1.1291	1.402	1.055	80.9	732
85	1.1252	1.407	1.097	81.0	686	1.1301	1.344	1.106	82.5	612	1.1363	1.345	1.114	82.3	604	1.1433	1.406	1.114	81.2	669
90	1.1309	1.401	1.105	79.3	668	1.1391	1.342	1.126	80.1	580	1.1471	1.346	1.132	80.0	578	1.1489	1.404	1.139	81.2	638
95 (tip)	1.1382	1.346	1.101	79.8	620	1.1373	1.309	1.124	81.1	543	1.1453	1.319	1.131	79.4	545	1.1549	1.355	1.128	81.2	600
MR	1.1179	1.362	1.043	82.6	709	1.1231	1.295	1.069	82.4	606	1.1304	1.305	1.080	82.1	604	1.1330	1.379	1.066	82.0	700

1) Test environment: P_o = 1988 psfa, T_o = 514.8°R
2) Vm calculation is based on standard day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta_{13} = \tan^{-1}[\tan \beta_{13}/\cos\epsilon]$

Table XXVI Flow Distribution at Stator Discharge for Circumferential Distortion, 10 Degree Closed Stator, Solid Casing

Combination Probe Station 13 95% Speed $W\sqrt{\theta}/\delta$ = 148.11 lb/sec

Circumferential Position % Span	T_{13}/T_o	P_{13}/P_o	14° P_{13}/P_o	14° $90-\beta_{13}$	14° Vm	T_{13}/T_o	P_{13}/P_o	44° P_{13}/P_o	44° $90-\beta_{13}$	44° Vm	T_{13}/T_o	P_{13}/P_o	74° P_{13}/P_o	74° $90-\beta_{13}$	74° Vm	T_{13}/T_o	P_{13}/P_o	104° P_{13}/P_o	104° $90-\beta_{13}$	104° Vm
5 (hub)	1.1037	1.155	1.125	79.6	226	1.0972	1.164	1.134	84.0	224	1.1024	1.135	1.102	87.0	238	1.1069	1.195	1.090	85.1	421
10	1.0985	1.120	1.098	76.2	223	1.0924	1.146	1.116	84.0	224	1.0979	1.141	1.108	86.4	239	1.0977	1.154	1.107	85.0	281
15	1.1000	1.128	1.098	63.2	205	1.0902	1.147	1.118	84.0	224	1.0946	1.154	1.114	81.0	260	1.0987	1.196	1.117	85.0	365
30	1.1178	1.174	1.142	72.4	222	1.0998	1.247	1.159	84.0	375	1.0966	1.285	1.125	82.8	501	1.1029	1.381	1.112	84.7	639
50	1.1489	1.385	1.145	81.4	609	1.1270	1.374	1.155	83.6	579	1.1019	1.281	1.132	80.8	482	1.0992	1.360	1.131	83.6	590
70	1.1610	1.421	1.174	82.5	615	1.1401	1.399	1.139	83.6	632	1.1207	1.295	1.130	82.8	512	1.0958	1.339	1.118	83.5	583
85	1.1590	1.371	1.178	83.9	550	1.1570	1.406	1.181	83.5	589	1.1360	1.312	1.159	81.2	491	1.1080	1.351	1.165	83.5	530
90	1.1637	1.368	1.197	82.1	517	1.1613	1.405	1.198	83.5	564	1.1406	1.317	1.175	80.0	470	1.1131	1.341	1.176	83.6	503
95 (tip)	1.1627	1.352	1.208	83.7	476	1.1667	1.367	1.181	83.6	541	1.1403	1.287	1.180	83.4	415	1.1197	1.303	1.165	83.6	467
MR	1.1475	1.346	1.160	80.6	539	1.1318	1.350	1.156	83.7	550	1.1130	1.276	1.135	82.1	474	1.1019	1.333	1.128	84.0	563
			134°					164°					194°					224°		
5 (hub)	1.1120	1.204	1.072	86.5	473	1.1106	1.126	1.079	86.5	287	1.1171	1.206	1.058	87.2	506	1.1156	1.125	1.068	85.6	318
10	1.1018	1.151	1.097	86.4	306	1.1089	1.136	1.086	86.9	298	1.1085	1.165	1.088	87.2	364	1.1173	1.162	1.080	88.5	378
15	1.1025	1.189	1.110	86.4	364	1.1047	1.144	1.091	80.6	299	1.1081	1.202	1.098	87.2	419	1.1131	1.157	1.084	82.1	354
30	1.1092	1.403	1.097	84.8	683	1.1163	1.341	1.097	83.0	619	1.1143	1.420	1.079	84.4	720	1.1220	1.321	1.092	83.3	605
50	1.1079	1.401	1.114	82.7	657	1.1133	1.345	1.112	80.2	598	1.1111	1.412	1.103	82.5	681	1.1171	1.351	1.109	80.8	610
70	1.1065	1.388	1.101	82.6	659	1.1145	1.342	1.120	82.1	586	1.1121	1.400	1.090	82.4	685	1.1170	1.340	1.114	82.6	593
85	1.1182	1.394	1.154	82.5	600	1.1243	1.346	1.153	81.4	544	1.1263	1.417	1.145	82.3	638	1.1295	1.345	1.143	81.5	559
90	1.1234	1.387	1.165	82.5	578	1.1323	1.346	1.168	80.5	522	1.1315	1.411	1.162	82.3	611	1.1391	1.346	1.162	80.2	533
95 (tip)	1.1297	1.332	1.144	82.6	543	1.1309	1.309	1.163	82.8	480	1.1379	1.352	1.145	82.3	568	1.1373	1.314	1.159	81.6	493
MR	1.1104	1.368	1.113	83.5	625	1.1165	1.319	1.118	81.8	562	1.1158	1.381	1.101	83.4	655	1.1211	1.315	1.112	82.2	566
			254°					284°					314°					344°		
5 (hub)	1.1201	1.207	1.055	87.4	512	1.1171	1.130	1.069	84.3	329	1.1155	1.130	1.075	82.9	310	1.1140	1.195	1.102	82.6	396
10	1.1161	1.197	1.082	87.5	445	1.1202	1.161	1.076	87.2	387	1.1219	1.165	1.087	87.0	369	1.1132	1.170	1.113	82.6	313
15	1.1154	1.222	1.096	86.7	462	1.1216	1.167	1.080	83.4	388	1.1276	1.170	1.093	82.8	363	1.1164	1.172	1.128	82.6	272
30	1.1216	1.419	1.074	84.6	729	1.1271	1.264	1.089	82.4	536	1.1381	1.248	1.100	81.6	495	1.1396	1.385	1.090	82.3	679
50	1.1177	1.425	1.101	82.4	697	1.1268	1.366	1.109	80.7	628	1.1382	1.397	1.122	80.9	648	1.1413	1.463	1.128	82.3	706
70	1.1175	1.403	1.084	82.3	697	1.1284	1.345	1.117	83.0	598	1.1343	1.364	1.127	82.9	607	1.1440	1.412	1.119	82.2	671
85	1.1327	1.411	1.135	82.3	646	1.1410	1.333	1.136	82.4	558	1.1440	1.347	1.149	82.0	558	1.1596	1.406	1.161	82.1	615
90	1.1393	1.411	1.160	82.2	617	1.1518	1.339	1.159	80.4	532	1.1538	1.348	1.168	80.0	530	1.1646	1.401	1.176	82.1	590
95 (tip)	1.1458	1.360	1.145	82.2	581	1.1500	1.313	1.158	81.6	496	1.1521	1.321	1.166	81.6	496	1.1692	1.368	1.159	82.1	574
MR	1.1221	1.383	1.096	83.4	666	1.1301	1.307	1.110	82.2	561	1.1371	1.323	1.122	81.9	565	1.1429	1.392	1.125	82.3	643

1) Test environment: P_o = 1995 psfa, T_o = 520.4°R
2) Vm calculation is based on standard day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta_{13} = \tan^{-1} [\tan \beta_{13}/\cos\epsilon]$

Table XXVII Flow Distribution at Stator Discharge for Circumferential Distortion, Nominal Stator, Treated Casing

Combination Probe Station 13 80% Speed $W\sqrt{\theta}/\delta$ = 147.67 lb/sec

Circumferential Position % Span	T_{13}/T_o	P_{13}/P_o	P_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	P_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	P_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	P_{13}/P_o	$90-\beta_{13}$	Vm
			14°					44°					74°					104°		
5 (hub)	1.0906	1.177	.900	95.6	705	1.0768	1.189	.943	93.3	655	1.0795	1.174	.949	93.8	629	1.0823	1.233	.966	92.8	673
10	1.0960	1.214	.918	91.3	724	1.0779	1.211	.951	89.8	669	1.0749	1.193	.968	90.9	623	1.0797	1.255	.981	90.3	676
15	1.1005	1.234	.932	90.7	727	1.0792	1.214	.965	89.8	653	1.0696	1.185	.975	91.5	602	1.0772	1.258	.995	90.2	660
30	1.1087	1.265	.956	90.4	729	1.0890	1.223	.979	89.8	647	1.0702	1.179	.980	91.3	586	1.0716	1.225	.999	90.7	614
50	1.0943	1.235	.962	90.7	685	1.0966	1.236	.982	89.6	659	1.0824	1.172	.986	89.8	571	1.0664	1.184	1.002	90.6	556
70	1.0819	1.210	.968	92.0	644	1.1037	1.256	.985	91.1	679	1.0885	1.173	.987	90.7	572	1.0714	1.165	1.001	92.2	531
85	1.0877	1.202	.998	90.4	593	1.1136	1.265	1.020	90.0	644	1.0995	1.181	1.016	89.6	536	1.0821	1.170	1.025	90.1	500
90	1.0910	1.191	1.008	90.7	563	1.1171	1.254	1.028	90.0	620	1.1029	1.170	1.026	90.4	504	1.0851	1.169	1.037	90.1	477
95 (tip)	1.0906	1.168	1.009	93.2	526	1.1165	1.226	1.028	92.3	584	1.1025	1.157	1.027	94.3	478	1.0848	1.153	1.036	91.6	452
MR	1.0936	1.222	.959	91.4	675	1.0966	1.236	.984	90.5	656	1.0834	1.176	.986	90.9	577	1.0746	1.200	1.000	91.1	582
			134°					164°					194°					224°		
5 (hub)	1.0845	1.266	.920	92.9	768	1.0930	1.245	.917	94.4	752	1.0900	1.282	.894	92.4	815	1.0959	1.268	.916	93.7	776
10	1.0817	1.280	.939	90.8	755	1.0875	1.264	.940	91.9	742	1.0854	1.304	.913	91.5	809	1.0900	1.281	.927	92.2	774
15	1.0783	1.285	.959	90.8	734	1.0849	1.266	.949	92.2	730	1.0836	1.306	.928	91.5	792	1.0876	1.278	.934	92.4	761
30	1.0743	1.266	.975	90.8	693	1.0783	1.247	.959	92.3	696	1.0802	1.286	.944	91.4	754	1.0819	1.258	.945	92.6	727
50	1.0673	1.231	.984	90.7	642	1.0710	1.213	.963	91.2	652	1.0737	1.242	.967	91.3	679	1.0746	1.222	.944	91.4	690
70	1.0639	1.202	.987	92.2	602	1.0705	1.199	.967	92.8	629	1.0721	1.224	.977	92.5	644	1.0735	1.209	.957	92.9	657
85	1.0720	1.211	1.020	90.3	565	1.0763	1.198	.998	91.0	584	1.0762	1.202	1.001	90.3	585	1.0772	1.193	.980	90.7	606
90	1.0763	1.195	1.022	90.4	543	1.0798	1.192	1.007	90.0	562	1.0797	1.185	1.005	90.3	555	1.0813	1.182	.990	89.8	576
95 (tip)	1.0760	1.168	1.022	94.8	499	1.0792	1.165	1.004	93.5	527	1.0795	1.153	1.003	93.6	511	1.0810	1.149	.989	93.3	531
MR	1.0724	1.237	.979	91.2	658	1.0777	1.223	.963	92.1	665	1.0783	1.250	.957	91.6	702	1.0805	1.232	.949	92.1	695
			254°					284°					314°					344°		
5 (hub)	1.0920	1.308	.880	91.9	853	1.1015	1.277	.899	93.2	808	1.1027	1.254	.887	94.1	803	1.1015	1.263	.877	93.5	823
10	1.0895	1.315	.900	91.9	834	1.0957	1.278	.921	92.8	780	1.1043	1.300	.902	90.9	826	1.1044	1.308	.880	90.0	858
15	1.0863	1.313	.910	91.9	820	1.0937	1.279	.929	92.7	770	1.0984	1.292	.925	91.2	789	1.1009	1.319	.911	90.0	829
30	1.0815	1.292	.934	91.9	772	1.0865	1.261	.935	92.3	743	1.0851	1.261	.937	92.4	741	1.0914	1.311	.926	89.9	802
50	1.0752	1.255	.958	91.8	706	1.0765	1.222	.937	91.7	700	1.0767	1.227	.935	91.2	707	1.0768	1.255	.954	91.1	711
70	1.0751	1.239	.967	91.8	676	1.0755	1.209	.947	92.3	672	1.0739	1.211	.946	92.4	675	1.0803	1.258	.972	92.0	690
85	1.0801	1.217	1.003	91.7	601	1.0793	1.191	.975	91.0	610	1.0796	1.208	.979	90.6	627	1.0892	1.244	1.001	89.3	640
90	1.0831	1.196	1.006	91.6	570	1.0823	1.177	.982	89.9	583	1.0826	1.191	.988	90.5	593	1.0929	1.226	1.006	89.3	612
95 (tip)	1.0826	1.168	1.000	94.0	540	1.0819	1.145	.982	92.8	539	1.0823	1.160	.985	93.8	552	1.0926	1.189	1.002	91.2	570
MR	1.0807	1.264	.948	91.8	728	1.0838	1.233	.940	92.0	709	1.0842	1.236	.939	91.9	715	1.0882	1.270	.947	90.9	739

1) Test environment: P_o = 2001 psfa, T_o = 522.4°R
2) Vm calculation is based on standard day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta_{13} = \tan^{-1}\left[\tan \beta_{13}/\cos\epsilon\right]$

Table XXVII Flow Distribution at Stator Discharge for Circumferential Distortion, Nominal Stator, Treated Casing

Combination Probe Station 13 80% Speed $W\sqrt{\theta}/\delta$ = 116.09 lb/sec

Circumferential Position % Span	T_{13}/T_o	P_{13}/P_o	14° P_{13}/P_o	14° $90-\beta_{13}$	14° Vm	T_{13}/T_o	P_{13}/P_o	44° P_{13}/P_o	44° $90-\beta_{13}$	44° Vm	T_{13}/T_o	P_{13}/P_o	74° P_{13}/P_o	74° $90-\beta_{13}$	74° Vm	T_{13}/T_o	P_{13}/P_o	104° P_{13}/P_o	104° $90-\beta_{13}$	104° Vm
5 (hub)	1.0782	1.153	1.108	111.5	257	1.0692	1.190	1.120	109.1	319	1.0789	1.205	1.089	101.6	430	1.0799	1.254	1.084	98.7	519
10	1.0745	1.121	1.091	109.5	214	1.0672	1.162	1.117	109.1	259	1.0761	1.192	1.081	98.1	424	1.0776	1.254	1.088	98.7	511
15	1.0742	1.114	1.084	102.5	222	1.0665	1.153	1.120	109.1	222	1.0756	1.201	1.082	93.0	443	1.0763	1.261	1.086	93.1	528
30	1.0838	1.162	1.109	95.0	299	1.0752	1.215	1.126	96.9	376	1.0699	1.210	1.092	89.9	440	1.0739	1.262	1.107	93.1	496
50	1.1029	1.276	1.093	87.9	545	1.0882	1.271	1.108	89.9	510	1.0769	1.219	1.095	90.4	449	1.0733	1.251	1.111	93.1	472
70	1.1126	1.299	1.106	87.6	558	1.1059	1.303	1.101	89.7	570	1.0932	1.234	1.093	90.8	482	1.0820	1.253	1.107	93.0	484
85	1.1183	1.276	1.118	90.4	508	1.1177	1.310	1.125	89.7	545	1.1044	1.249	1.115	88.0	470	1.0905	1.257	1.136	93.0	440
90	1.1216	1.270	1.132	90.8	475	1.1205	1.307	1.137	89.7	523	1.1078	1.245	1.131	89.4	431	1.0928	1.247	1.141	93.0	413
95 (tip)	1.1212	1.267	1.149	93.4	438	1.1201	1.296	1.142	92.5	498	1.1074	1.233	1.141	94.6	387	1.0925	1.240	1.137	94.5	408
MR	1.1039	1.251	1.106	91.7	487	1.0957	1.268	1.115	93.3	495	1.0853	1.223	1.097	91.6	454	1.0797	1.255	1.108	93.9	484
			134°					164°					194°					224°		
5 (hub)	1.0796	1.268	1.058	96.1	578	1.0858	1.232	1.049	97.2	546	1.0850	1.289	1.045	93.4	627	1.0923	1.244	1.058	101.8	543
10	1.0783	1.274	1.060	93.6	586	1.0841	1.246	1.050	92.4	566	1.0816	1.292	1.056	91.9	615	1.0887	1.218	1.041	97.3	540
15	1.0773	1.278	1.066	90.7	583	1.0828	1.251	1.058	90.0	562	1.0800	1.291	1.069	91.9	593	1.0877	1.230	1.043	92.4	558
30	1.0747	1.273	1.075	90.7	562	1.0780	1.248	1.068	90.1	540	1.0784	1.284	1.073	91.8	579	1.0862	1.262	1.059	89.5	574
50	1.0757	1.271	1.081	90.6	550	1.0790	1.244	1.076	90.1	524	1.0780	1.276	1.079	91.8	559	1.0841	1.251	1.063	90.0	554
70	1.0805	1.274	1.078	90.5	561	1.0842	1.247	1.078	90.1	525	1.0847	1.278	1.082	91.7	560	1.0945	1.249	1.070	90.1	542
85	1.0928	1.274	1.110	90.5	513	1.0967	1.243	1.098	89.4	488	1.0970	1.265	1.105	91.7	508	1.1048	1.237	1.089	91.0	496
90	1.0962	1.265	1.119	90.6	485	1.0990	1.235	1.114	90.3	446	1.1009	1.257	1.118	91.8	475	1.1105	1.232	1.100	89.8	470
95 (tip)	1.0956	1.251	1.123	94.6	455	1.0984	1.222	1.121	94.2	409	1.1003	1.243	1.113	93.0	462	1.1091	1.222	1.107	92.0	438
MR	1.0806	1.272	1.081	91.3	553	1.0846	1.244	1.075	90.9	526	1.0842	1.278	1.079	92.0	565	1.0921	1.246	1.067	91.7	543
			254°					284°					314°					344°		
5 (hub)	1.0915	1.289	1.044	100.6	620	1.0882	1.176	1.048	107.0	449	1.0961	1.223	1.062	105.5	501	1.0917	1.249	1.073	103.2	524
10	1.0891	1.281	1.032	96.5	634	1.0818	1.137	1.036	98.6	415	1.0919	1.168	1.048	100.6	447	1.0907	1.224	1.075	103.3	484
15	1.0886	1.297	1.038	92.1	647	1.0841	1.149	1.036	94.0	444	1.0913	1.157	1.050	95.4	429	1.0900	1.205	1.083	100.4	445
30	1.0848	1.302	1.060	90.4	622	1.0964	1.276	1.042	89.3	620	1.1032	1.286	1.049	90.0	623	1.0976	1.299	1.063	90.3	617
50	1.0851	1.291	1.064	90.3	603	1.0961	1.271	1.059	89.3	588	1.0996	1.292	1.064	88.4	608	1.1042	1.344	1.081	88.3	644
70	1.0974	1.284	1.073	90.3	585	1.1064	1.248	1.070	90.8	544	1.1100	1.277	1.078	89.9	572	1.1120	1.304	1.083	89.3	599
85	1.1136	1.266	1.091	90.3	537	1.1217	1.234	1.084	93.0	502	1.1238	1.255	1.094	93.3	517	1.1257	1.275	1.106	93.0	528
90	1.1203	1.266	1.108	90.3	511	1.1309	1.232	1.100	92.7	474	1.1321	1.253	1.110	93.5	489	1.1293	1.270	1.121	93.0	494
95 (tip)	1.1190	1.254	1.108	90.8	492	1.1295	1.229	1.105	92.7	458	1.1307	1.249	1.116	93.5	473	1.1283	1.266	1.124	93.0	483
MR	1.0942	1.287	1.065	91.8	598	1.1019	1.241	1.061	92.3	547	1.1065	1.262	1.069	92.8	565	1.1065	1.294	1.083	92.3	585

1) Test environment: P_o = 2043 psfa, T_o = 528.1°R
2) Vm calculation is based on standard day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta_{13} = \tan^{-1}[\tan\beta_{13}/\cos\epsilon]$

Table XXVII Flow Distribution at Stator Discharge for Circumferential Distortion, Nominal Stator, Treated Casing

Combination Probe Station 13 90% Speed $W\sqrt{\theta}/\delta$ = 132.61 lb/sec

Circumferential Position % Span	T_{13}/T_o	P_{13}/P_o	14° P_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	44° P_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	74° P_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	104° P_{13}/P_o	$90-\beta_{13}$	Vm
5 (hub)	1.1021	1.185	1.135	112.9	268	1.0872	1.235	1.141	109.0	368	1.1018	1.252	1.116	103.7	459	1.1003	1.320	1.108	100.4	569
10	1.0968	1.150	1.119	109.3	216	1.0843	1.200	1.141	108.9	293	1.0975	1.230	1.105	99.8	449	1.0977	1.311	1.095	97.2	581
15	1.0978	1.143	1.113	103.0	224	1.0836	1.188	1.146	108.9	250	1.0957	1.244	1.106	94.2	473	1.0962	1.320	1.097	92.3	592
30	1.1077	1.194	1.141	96.2	295	1.0943	1.268	1.138	94.5	454	1.0892	1.269	1.120	90.3	488	1.0930	1.337	1.113	89.3	590
50	1.1307	1.350	1.119	88.9	606	1.1154	1.350	1.121	88.2	599	1.0978	1.279	1.122	91.0	500	1.0921	1.322	1.120	90.0	561
70	1.1463	1.396	1.133	87.6	643	1.1363	1.384	1.116	88.9	650	1.1153	1.300	1.121	91.4	536	1.0978	1.326	1.121	91.1	565
85	1.1509	1.365	1.154	91.2	579	1.1513	1.396	1.155	88.9	615	1.1337	1.323	1.148	88.7	529	1.1120	1.340	1.155	88.9	536
90	1.1527	1.357	1.168	91.0	549	1.1540	1.387	1.166	88.8	590	1.1379	1.320	1.165	89.2	498	1.1161	1.327	1.163	89.9	508
95 (tip)	1.1514	1.352	1.184	92.7	516	1.1534	1.369	1.170	92.8	561	1.1373	1.301	1.171	93.6	458	1.1164	1.309	1.169	95.6	467
MR	1.1342	1.328	1.136	92.1	554	1.1225	1.340	1.134	92.1	570	1.1084	1.284	1.126	92.2	504	1.0989	1.328	1.123	91.5	566
			134°					164°					194°					224°		
5 (hub)	1.1043	1.344	1.071	97.3	653	1.1111	1.300	1.049	97.6	636	1.1093	1.372	1.045	94.4	717	1.1178	1.310	1.056	102.4	629
10	1.1014	1.347	1.064	94.4	667	1.1078	1.314	1.050	93.3	653	1.1047	1.376	1.045	91.3	721	1.1129	1.284	1.039	98.2	632
15	1.0998	1.352	1.068	90.3	668	1.1074	1.321	1.062	90.6	646	1.1035	1.377	1.064	89.7	698	1.1106	1.297	1.042	93.4	647
30	1.0960	1.352	1.091	90.2	637	1.1041	1.320	1.085	90.6	612	1.1017	1.369	1.081	90.0	670	1.1067	1.336	1.065	90.0	657
50	1.0958	1.346	1.094	90.1	628	1.1021	1.313	1.090	90.2	596	1.1006	1.362	1.089	90.0	652	1.1065	1.323	1.076	90.5	628
70	1.1004	1.351	1.096	90.1	630	1.1054	1.312	1.093	90.6	591	1.1084	1.363	1.093	89.9	649	1.1148	1.317	1.084	90.3	614
85	1.1185	1.351	1.140	90.0	575	1.1180	1.321	1.124	88.8	560	1.1251	1.346	1.124	89.8	592	1.1312	1.306	1.109	90.4	567
90	1.1231	1.335	1.142	90.0	553	1.1249	1.307	1.136	89.7	524	1.1305	1.335	1.134	89.8	566	1.1372	1.298	1.123	89.9	535
95 (tip)	1.1222	1.317	1.147	95.1	517	1.1243	1.285	1.139	95.0	486	1.1296	1.316	1.134	93.2	541	1.1360	1.282	1.130	92.6	500
MR	1.1028	1.348	1.097	91.1	627	1.1082	1.314	1.089	91.1	600	1.1086	1.362	1.087	90.5	657	1.1149	1.316	1.077	92.1	621
			254°					284°					314°					344°		
5 (hub)	1.1165	1.330	1.043	101.7	670	1.1095	1.208	1.061	108.5	476	1.1255	1.261	1.084	108.8	515	1.1192	1.312	1.084	103.9	590
10	1.1124	1.313	1.036	97.2	669	1.1022	1.160	1.049	101.3	434	1.1170	1.191	1.068	103.6	449	1.1177	1.273	1.089	103.9	536
15	1.1122	1.340	1.032	92.4	705	1.1049	1.169	1.050	95.9	453	1.1149	1.172	1.076	98.6	403	1.1190	1.249	1.089	99.8	510
30	1.1126	1.399	1.049	88.6	740	1.1223	1.340	1.051	90.6	684	1.1289	1.318	1.067	92.0	641	1.1282	1.363	1.066	90.0	691
50	1.1115	1.383	1.073	89.2	696	1.1253	1.355	1.077	89.7	667	1.1300	1.382	1.089	88.7	682	1.1338	1.447	1.080	88.2	752
70	1.1262	1.372	1.086	89.1	673	1.1361	1.329	1.092	90.6	622	1.1393	1.356	1.106	90.6	634	1.1437	1.405	1.104	89.5	689
85	1.1461	1.351	1.114	89.7	620	1.1546	1.305	1.111	93.1	569	1.1587	1.328	1.124	94.0	578	1.1586	1.369	1.132	91.7	617
90	1.1552	1.350	1.129	89.2	597	1.1661	1.304	1.130	92.6	540	1.1676	1.324	1.139	93.7	553	1.1644	1.362	1.146	91.7	592
95 (tip)	1.1533	1.336	1.136	91.7	571	1.1639	1.298	1.139	93.5	514	1.1655	1.319	1.148	93.9	530	1.1636	1.350	1.151	93.4	567
MR	1.1222	1.367	1.073	90.9	684	1.1304	1.309	1.080	92.9	614	1.1366	1.328	1.095	93.4	615	1.1375	1.379	1.095	92.0	673

1) Test environment: P_o = 2026 psfa, T_o = 518.4°R
2) Vm calculation is based on standard day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta_{13} = \tan^{-1}\left[\tan \beta_{13}/\cos\alpha\right]$

Table XXVII Flow Distribution at Stator Discharge for Circumferential Distortion, Nominal Stator, Treated Casing

Combination Probe Station 13 95% Speed $W\sqrt{\theta}/\delta$ = 172.53 lb/sec

Circumferential Position % Span	14°					44°					74°					104°				
	T_{13}/To	P_{13}/Po	P_{13}/Po	$90-\beta_{13}$	Vm	T_{13}/To	P_{13}/Po	P_{13}/Po	$90-\beta_{13}$	Vm	T_{13}/To	P_{13}/Po	P_{13}/Po	$90-\beta_{13}$	Vm	T_{13}/To	P_{13}/Po	P_{13}/Po	$90-\beta_{13}$	Vm
5 (hub)	1.1286	1.242	.854	96.5	839	1.1064	1.246	.909	95.0	768	1.1101	1.219	.926	95.0	720	1.1145	1.322	.909	93.8	837
10	1.1367	1.293	.872	92.2	869	1.1092	1.275	.912	91.7	795	1.1040	1.254	.948	91.1	727	1.1103	1.361	.930	90.9	845
15	1.1416	1.322	.902	91.0	858	1.1123	1.289	.927	90.0	790	1.0982	1.253	.958	91.1	711	1.1047	1.371	.964	90.9	812
30	1.1476	1.372	.943	90.3	853	1.1249	1.310	.966	90.0	765	1.0962	1.241	.971	91.8	681	1.0950	1.321	.985	90.9	741
50	1.1235	1.326	.950	91.5	797	1.1327	1.319	.961	89.9	782	1.1140	1.235	.978	89.9	669	1.0863	1.252	1.003	90.8	646
70	1.1176	1.325	.961	92.1	781	1.1458	1.345	.957	90.9	813	1.1249	1.240	.989	91.4	662	1.0944	1.216	1.011	91.5	591
85	1.1306	1.338	.995	90.3	756	1.1639	1.391	1.013	89.6	792	1.1430	1.248	1.024	89.6	625	1.1067	1.194	1.034	91.5	527
90	1.1349	1.331	1.010	89.8	733	1.1692	1.390	1.024	89.6	780	1.1498	1.235	1.035	89.8	594	1.1101	1.186	1.045	91.6	495
95 (tip)	1.1348	1.284	1.013	93.3	679	1.1689	1.360	1.036	93.8	736	1.1497	1.207	1.037	93.7	551	1.1097	1.172	1.045	92.5	471
MR	1.1306	1.326	.945	91.6	806	1.1363	1.327	.964	90.7	787	1.1170	1.239	.980	91.2	672	1.0990	1.272	.989	91.5	690
	134°					164°					194°					224°				
5 (hub)	1.1214	1.376	.875	93.8	921	1.1305	1.351	.896	94.9	880	1.1281	1.422	.889	92.6	960	1.1350	1.384	.917	93.8	884
10	1.1167	1.405	.894	91.9	918	1.1244	1.379	.923	92.2	870	1.1233	1.449	.891	92.6	952	1.1274	1.401	.915	93.0	896
15	1.1128	1.414	.927	91.9	888	1.1210	1.382	.926	91.9	857	1.1200	1.447	.907	92.6	933	1.1251	1.396	.920	92.6	886
30	1.1054	1.381	.949	91.9	837	1.1124	1.352	.955	92.4	808	1.1123	1.416	.919	92.1	896	1.1154	1.367	.935	92.1	845
50	1.0946	1.325	.978	91.8	753	1.1021	1.304	.956	91.3	763	1.1018	1.354	.918	90.6	850	1.1053	1.319	.934	91.5	804
70	1.0912	1.278	.990	91.9	692	1.1002	1.278	.961	93.0	731	1.1020	1.324	.942	91.9	798	1.1067	1.295	.944	92.9	771
85	1.1023	1.256	1.021	91.9	628	1.1084	1.259	.986	91.3	683	1.1101	1.266	.993	91.8	680	1.1125	1.259	.962	91.4	716
90	1.1068	1.237	1.027	91.8	598	1.1151	1.244	1.000	90.9	649	1.1142	1.245	1.004	91.8	643	1.1192	1.244	.974	90.4	686
95 (tip)	1.1064	1.208	1.026	94.3	560	1.1144	1.211	1.002	93.1	604	1.1138	1.208	.992	91.8	615	1.1187	1.207	.978	92.8	638
MR	1.1030	1.330	.963	92.1	778	1.1108	1.313	.953	92.3	777	1.1106	1.362	.929	91.8	846	1.1149	1.327	.938	92.2	809
	254°					284°					314°					344°				
5 (hub)	1.1322	1.453	.888	93.4	961	1.1418	1.394	.901	94.2	911	1.1429	1.339	.857	95.9	924	1.1403	1.363	.832	94.9	963
10	1.1272	1.464	.899	93.4	954	1.1332	1.402	.903	93.8	911	1.1438	1.405	.867	92.1	958	1.1457	1.437	.879	90.9	967
15	1.1245	1.455	.893	92.3	955	1.1291	1.404	.913	93.4	902	1.1394	1.409	.889	91.7	935	1.1432	1.459	.893	90.9	965
30	1.1154	1.433	.917	92.2	911	1.1187	1.379	.919	92.1	872	1.1238	1.385	.916	91.6	883	1.1282	1.454	.922	91.0	926
50	1.1064	1.375	.907	90.9	882	1.1077	1.332	.913	91.4	840	1.1105	1.336	.911	91.0	847	1.1098	1.387	.920	90.9	875
70	1.1082	1.347	.922	91.8	842	1.1068	1.312	.934	92.9	797	1.1102	1.325	.931	92.5	815	1.1130	1.381	.936	91.9	853
85	1.1169	1.292	.987	91.7	718	1.1145	1.280	.950	91.5	753	1.1211	1.315	.957	91.0	779	1.1314	1.368	.988	90.4	791
90	1.1225	1.271	.992	90.8	691	1.1218	1.267	.963	90.2	726	1.1297	1.303	.968	89.7	757	1.1367	1.341	1.001	90.4	753
95 (tip)	1.1221	1.229	.984	91.3	656	1.1208	1.230	.968	91.9	680	1.1286	1.257	.971	91.5	707	1.1365	1.286	.996	91.8	706
MR	1.1156	1.382	.922	91.9	871	1.1177	1.341	.924	92.3	838	1.1224	1.346	.916	92.0	853	1.1251	1.397	.925	91.5	883

1) Test environment: P_o = 1950 psfa, T_o = 523.6°R
2) Vm calculation is based on standard day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta_{13} = \tan^{-1}[\tan \beta_{13}/\cos\epsilon]$

Table XXVII Flow Distribution at Stator Discharge for Circumferential Distortion, Nominal Stator, Treated Casing

Combination Probe Station 13 95% Speed $W\sqrt{\theta}/\delta$ = 155.66 lb/sec

Circumferential Position % Span	T_{13}/T_o	P_{13}/P_o	P_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	P_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	P_{13}/P_o	$90-\beta_{13}$	Vm	T_{13}/T_o	P_{13}/P_o	P_{13}/P_o	$90-\beta_{13}$	Vm
	14°					44°					74°					104°				
5 (hub)	1.1219	1.241	1.090	106.5	484	1.1008	1.274	1.103	104.5	509	1.1102	1.254	1.072	98.6	546	1.1106	1.352	1.070	96.5	664
10	1.1166	1.183	1.083	102.0	408	1.0980	1.232	1.108	104.7	436	1.1078	1.279	1.078	93.7	571	1.1073	1.366	1.067	93.4	684
15	1.1185	1.175	1.083	98.2	396	1.0986	1.223	1.107	98.9	433	1.1042	1.289	1.088	90.7	571	1.1051	1.374	1.078	90.1	679
30	1.1112	1.317	1.063	90.9	650	1.1117	1.321	1.084	89.1	617	1.0938	1.272	1.101	90.2	525	1.1008	1.369	1.107	90.0	635
50	1.1515	1.407	1.084	87.8	718	1.1340	1.377	1.098	89.0	666	1.1092	1.283	1.109	90.6	532	1.0942	1.324	1.105	89.9	587
70	1.1521	1.415	1.113	90.4	689	1.1487	1.400	1.098	90.5	694	1.1299	1.303	1.107	91.3	565	1.1011	1.308	1.105	91.3	568
85	1.1534	1.381	1.142	91.2	617	1.1666	1.424	1.139	88.5	671	1.1476	1.323	1.136	88.7	551	1.1160	1.322	1.137	89.2	540
90	1.1561	1.367	1.156	92.1	580	1.1714	1.410	1.150	88.8	643	1.1539	1.322	1.156	89.1	521	1.1210	1.313	1.144	89.7	519
95 (tip)	1.1553	1.344	1.162	94.1	541	1.1704	1.386	1.155	93.4	608	1.1534	1.302	1.162	95.0	477	1.1201	1.299	1.153	95.7	481
MR	1.1457	1.358	1.101	92.0	644	1.1357	1.363	1.107	91.5	639	1.1189	1.291	1.108	91.3	546	1.1042	1.337	1.104	91.0	604
			134°					164°					194°					224°		
5 (hub)	1.1147	1.369	1.009	94.4	759	1.1235	1.330	1.003	95.9	732	1.1187	1.405	.976	93.6	829	1.1316	1.357	.999	96.3	764
10	1.1109	1.396	1.014	90.9	778	1.1182	1.361	1.032	91.7	728	1.1132	1.413	.996	92.1	811	1.1249	1.381	1.021	92.6	761
15	1.1072	1.400	1.038	89.7	752	1.1136	1.363	1.045	91.6	712	1.1113	1.418	1.009	91.0	802	1.1200	1.382	1.033	91.7	746
30	1.1064	1.393	1.057	89.8	723	1.1107	1.353	1.058	91.7	686	1.1103	1.410	1.024	91.0	777	1.1156	1.362	1.043	92.5	714
50	1.1026	1.373	1.072	89.7	685	1.1069	1.334	1.065	90.7	656	1.1054	1.384	1.060	90.9	712	1.1094	1.342	1.051	90.9	683
70	1.1023	1.353	1.081	90.8	653	1.1061	1.320	1.071	91.4	632	1.1044	1.366	1.061	90.8	692	1.1071	1.321	1.047	91.5	666
85	1.1181	1.349	1.116	90.1	606	1.1166	1.322	1.103	90.1	593	1.1202	1.368	1.095	89.1	656	1.1192	1.330	1.083	89.7	631
90	1.1220	1.336	1.121	90.1	584	1.1227	1.314	1.117	90.2	563	1.1250	1.347	1.100	89.0	628	1.1280	1.318	1.100	89.8	596
95 (tip)	1.1219	1.292	1.119	94.8	529	1.1219	1.283	1.117	94.1	521	1.1249	1.303	1.100	93.8	575	1.1273	1.287	1.100	93.9	553
MR	1.1083	1.370	1.068	90.6	688	1.1124	1.335	1.063	91.6	660	1.1114	1.387	1.045	90.9	733	1.1163	1.345	1.047	91.8	692
			254°					284°					314°					344°		
5 (hub)	1.1286	1.438	.960	93.2	875	1.1322	1.297	.993	100.9	708	1.1353	1.291	1.009	105.2	670	1.1353	1.365	1.015	101.0	744
10	1.1227	1.443	.984	92.3	851	1.1298	1.320	.986	95.7	747	1.1309	1.238	.998	100.3	639	1.1367	1.362	.980	97.2	791
15	1.1192	1.438	1.012	92.3	816	1.1308	1.359	1.003	92.9	764	1.1330	1.262	.999	96.0	672	1.1370	1.366	.975	92.8	805
30	1.1141	1.417	1.037	92.2	770	1.1235	1.375	1.042	91.1	730	1.445	1.426	1.046	90.4	778	1.1404	1.484	1.001	87.6	869
50	1.1082	1.389	1.050	90.5	728	1.1149	1.342	1.046	91.3	690	1.1304	1.380	1.052	90.7	725	1.1315	1.435	1.039	89.7	788
70	1.1069	1.369	1.053	91.1	705	1.1151	1.328	1.045	91.4	677	1.1273	1.356	1.061	91.3	690	1.1337	1.403	1.060	90.6	788
85	1.1254	1.377	1.095	89.0	667	1.1282	1.336	1.081	89.8	643	1.1411	1.363	1.099	89.8	651	1.1465	1.410	1.107	89.2	691
90	1.1292	1.360	1.099	89.0	645	1.1349	1.329	1.100	90.0	611	1.1489	1.348	1.114	89.9	616	1.1505	1.397	1.117	89.2	666
95 (tip)	1.1287	1.321	1.102	93.5	595	1.1345	1.299	1.101	94.1	570	1.1485	1.320	1.119	93.5	573	1.1503	1.369	1.123	93.0	627
MR	1.1162	1.398	1.041	91.2	749	1.1231	1.339	1.042	92.3	695	1.1356	1.359	1.053	92.6	704	1.1376	1.417	1.041	91.0	773

1) Test environment: P_o = 1976 psfa, T_o = 516.1°R
2) Vm calculation is based on standard day inlet-plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta_{13} = \tan^{-1}[\tan\beta_{13}/\cos\epsilon]$

Table XXVII Flow Distribution at Stator Discharge for Circumferential Distortion, Nominal Stator, Treated Casing

Combination Probe Station 13 95% Speed $W\sqrt{\theta}/\delta$ = 143.24 lb/sec

Circumferential Position % Span	T_{13}/To	P_{13}/Po	14° P_{13}/Po	$90-\beta_{13}$	Vm	T_{13}/To	P_{13}/Po	44° P_{13}/Po	$90-\beta_{13}$	Vm	T_{13}/To	P_{13}/Po	74° P_{13}/Po	$90-\beta_{13}$	Vm	T_{13}/To	P_{13}/Po	104° P_{13}/Po	$90-\beta_{13}$	Vm
5 (hub)	1.1143	1.208	1.141	112.8	309	1.0967	1.257	1.145	108.3	404	1.1098	1.264	1.128	104.3	456	1.1092	1.347	1.111	100.3	598
10	1.1091	1.163	1.132	109.0	212	1.0924	1.215	1.147	108.1	316	1.1056	1.240	1.116	100.0	445	1.1065	1.335	1.113	100.3	582
15	1.1105	1.154	1.124	102.5	225	1.0922	1.203	1.154	108.1	270	1.1039	1.254	1.116	94.4	474	1.1049	1.349	1.107	93.8	613
30	1.1240	1.225	1.140	95.6	376	1.1041	1.296	1.136	94.1	503	1.0970	1.291	1.130	89.7	505	1.1002	1.373	1.131	90.5	608
50	1.1484	1.402	1.121	88.6	666	1.1280	1.391	1.125	88.5	643	1.1070	1.300	1.133	90.3	515	1.0983	1.358	1.132	90.4	589
70	1.1616	1.447	1.143	89.2	687	1.1483	1.424	1.120	89.0	690	1.1303	1.326	1.132	91.3	557	1.1044	1.350	1.128	90.9	587
85	1.1689	1.425	1.166	91.1	638	1.1650	1.443	1.170	88.9	650	1.1493	1.352	1.165	88.5	546	1.1190	1.369	1.178	90.9	541
90	1.1733	1.419	1.185	90.6	606	1.1703	1.432	1.180	88.9	626	1.1536	1.346	1.181	89.2	514	1.1245	1.354	1.179	90.9	521
95 (tip)	1.1725	1.407	1.198	92.2	572	1.1697	1.407	1.181	92.8	596	1.1529	1.324	1.185	94.3	471	1.1240	1.335	1.176	94.7	498
MR	1.1504	1.374	1.143	92.4	605	1.1343	1.377	1.140	92.1	609	1.1198	1.306	1.138	91.9	519	1.1061	1.358	1.135	92.2	586
			134°					164°					194°					224°		
5 (hub)	1.1123	1.373	1.069	96.6	687	1.1224	1.335	1.051	97.7	674	1.1197	1.413	1.045	95.2	756	1.1298	1.344	1.051	101.7	677
10	1.1099	1.387	1.066	94.1	707	1.1178	1.351	1.052	93.4	692	1.1148	1.416	1.047	92.4	757	1.1240	1.327	1.032	97.4	691
15	1.1083	1.393	1.078	90.9	699	1.1155	1.358	1.068	91.3	679	1.1126	1.417	1.082	92.3	717	1.1220	1.341	1.042	93.4	696
30	1.1042	1.391	1.101	90.9	667	1.1109	1.353	1.087	90.8	648	1.1106	1.410	1.099	92.3	690	1.1159	1.368	1.072	90.5	684
50	1.1040	1.389	1.109	90.8	655	1.1094	1.348	1.097	90.4	629	1.1088	1.394	1.106	92.2	665	1.1148	1.354	1.082	90.7	656
70	1.1057	1.382	1.100	90.7	660	1.1118	1.341	1.098	91.2	620	1.1136	1.390	1.099	92.1	671	1.1192	1.344	1.084	91.2	644
85	1.1243	1.395	1.158	90.7	603	1.1273	1.358	1.137	89.3	589	1.1330	1.408	1.135	89.2	649	1.1349	1.351	1.117	89.1	611
90	1.1289	1.377	1.159	90.6	581	1.1346	1.351	1.153	89.3	561	1.1371	1.390	1.138	89.1	627	1.1397	1.340	1.132	89.4	577
95 (tip)	1.1282	1.350	1.154	95.4	553	1.1340	1.319	1.153	94.8	514	1.1367	1.361	1.141	94.4	589	1.1389	1.315	1.138	94.0	535
MR	1.1100	1.387	1.107	91.6	656	1.1163	1.348	1.095	91.4	633	1.1168	1.402	1.099	92.0	684	1.1225	1.350	1.080	92.1	656
			254°					284°					314°					344°		
5 (hub)	1.1281	1.380	1.044	102.9	716	1.1222	1.219	1.070	109.9	476	1.1351	1.277	1.080	108.5	546	1.1323	1.346	1.089	104.4	623
10	1.1243	1.374	1.020	97.8	749	1.1127	1.164	1.058	102.9	421	1.1255	1.204	1.066	103.5	476	1.1288	1.305	1.093	104.4	571
15	1.1242	1.384	1.026	93.7	756	1.1147	1.170	1.061	97.7	434	1.1249	1.190	1.070	98.1	454	1.1270	1.265	1.096	99.3	524
30	1.1221	1.435	1.060	90.3	761	1.1331	1.358	1.057	91.7	698	1.1430	1.356	1.064	92.3	690	1.1398	1.419	1.048	89.7	767
50	1.1207	1.421	1.081	90.3	725	1.1325	1.390	1.084	89.8	696	1.1433	1.422	1.092	89.6	719	1.1437	1.483	1.095	89.6	769
70	1.1289	1.410	1.094	90.2	701	1.1420	1.371	1.099	90.5	661	1.1546	1.403	1.109	90.7	684	1.1524	1.434	1.098	89.7	726
85	1.1460	1.394	1.131	90.1	645	1.1554	1.353	1.127	90.9	604	1.1688	1.384	1.134	91.2	634	1.1662	1.417	1.134	89.7	669
90	1.1492	1.382	1.142	90.1	616	1.1595	1.340	1.145	90.9	563	1.1740	1.373	1.154	91.5	595	1.1707	1.412	1.153	89.7	641
95 (tip)	1.1486	1.361	1.140	91.9	594	1.1584	1.323	1.152	93.8	528	1.1731	1.361	1.162	93.0	568	1.1704	1.397	1.157	92.2	618
MR	1.1287	1.407	1.080	92.0	715	1.1373	1.341	1.089	92.8	639	1.1491	1.367	1.098	93.1	659	1.1472	1.418	1.096	92.0	712

1) Test environment: P_o = 1995 psfa, T_o = 521.8°R
2) Vm calculation is based on standard day inlet plenum conditions
3) Circumferential reference position is TDC looking aft
4) Screen position: 55°-145°
5) $\beta_{13} = \tan^{-1}\left[\tan\beta_{13}/\cos\epsilon\right]$

TABLE XXVIII

STAGE OVERALL PERFORMANCE FOR INLET CIRCUMFERTIAL DISTORTION

Configuration	% Speed	$W\sqrt{\theta}/\delta$ (lb/sec)	P13/P4	η	T13/T4
Solid Casing	80	147.88	1.2870	90.5	1.0827
- Nominal Stator	80	137.95	1.2940	89.9	1.0852
	80	128.53	1.2945	86.7	1.0884
	90	165.67	1.3690	89.3	1.1052
	90	154.67	1.3820	88.6	1.1095
	90	143.2	1.3820	85.7	1.1131
	95	173.11	1.4113	88.4	1.1172
	95	161.23	1.4300	88.1	1.1222
	95	148.59	1.4280	84.7	1.1265
Solid Casing	95	161.15	1.3976	82.1	1.1224
- Stator 10° Closed	95	154.14	1.4310	86.2	1.1252
	95	148.11	1.4400	85.9	1.1279
Casing Treatment	80	147.67	1.2840	89.5	1.0828
- Nominal Stator	80	116.09	1.2886	80.7	1.0933
	90	132.61	1.3764	80.8	1.1184
	95	172.53	1.4058	85.7	1.1193
	95	155.66	1.4272	85.6	1.1251
	95	143.24	1.4232	82.5	1.1287

APPENDIX J

STALL WEIGHT FLOWS

Table XXIX Summary of Stall Weight Flows

TABLE XXIX

SUMMARY OF STALL WEIGHT FLOWS (lb/sec)
UNIFORM INLET FLOW

Percent Design Speed	Solid Casing Nominal Stator	Solid Casing 10° Closed Stator	Solid Casing 5° Closed Stator	Solid Casing 5° Open Stator	Treated Casing Nominal Stator
65	95	96	97	96	---
80	121	1211	121	121	117
90	137	137	139	137	137
95	145	143	---	---	150
100	161	156	161	153	161
110	187	178	---	172	---
		Tip Radial Distortion			
80	140				131
90	155				145
95	163				152
		Hub Radial Distortion			
80	109	---			99
90	123	---			112
95	130	142			118
		Circumferential Distortion			
80	121	---			110
90	138	---			128
95	142	144			139

APPENDIX K

BROADBAND SOUND PRESSURE LEVELS AND SOUND POWER LEVELS FOR ONE-THIRD OCTAVE BAND

Table XXX	Nominal Stator, Solid Casing
Table XXXI	10° Closed Stator, Solid Casing
Table XXXII	Nominal Stator, Treated Casing

Table XXX(a)

ONE-THIRD-OCTAVE BROADBAND SOUND PRESSURE LEVELS (dB 0.0002 DYNES/CM^2)
NOMINAL STATOR SETTING

				Frequency Band (Hz)											
	% Design Speed	$W\sqrt{\theta}/\delta$ lb/sec	Tip Relative Mach No.	560-710	710-890	890-1120	1120-1400	1400-1800	1800-2240	2240-2810	2810-3540	3540-4470	4470-5620	5620-7100	7100-8900
Open Throttle	110	191.90	1.234	114.8	115.1	115.3	116.4	117.1	118.4	120.5	122.2	123.0	124.1	123.5	119.2
	100	184.06	1.124	114.5	114.4	114.2	114.7	114.8	115.8	117.6	119.0	120.2	121.1	120.7	116.5
	90	174.06	1.012	113.9	115.7	113.7	114.3	114.3	115.7	116.3	116.7	117.4	118.7	117.8	114.4
	80	157.12	0.886	115.3	115.1	114.9	115.4	115.1	115.9	117.3	118.3	119.2	120.7	120.2	117.3
Part Throttle	110	187.32	1.219	116.7	116.4	116.5	117.5	118.0	119.4	121.6	122.8	124.3	125.7	125.4	121.5
	105	175.18	1.140	117.3	117.0	116.7	117.1	117.3	118.4	120.7	122.8	123.1	124.7	124.2	120.3
	100	168.01	1.078	115.9	115.8	115.7	116.3	116.7	117.9	120.2	121.6	122.7	123.5	123.1	119.9
	90	150.02	0.950	115.6	115.4	115.2	115.9	115.8	117.3	119.5	120.6	122.2	124.3	124.6	122.8
	80	140.03	0.848	114.8	114.6	114.4	114.7	114.8	115.9	117.9	119.4	121.1	123.0	122.4	119.5

Table XXX(b)

BROADBAND SOUND POWER LEVELS (dB 10^{-13} WATTS)
NOMINAL STATOR SETTING

				Frequency Band (Hz)												
	% Design Speed	$W\sqrt{\theta}/\delta$ lb/sec	Tip Relative Mach No.	560-710	710-890	890-1120	1120-1400	1400-1800	1800-2240	2240-2810	2810-3540	3540-4470	4470-5620	5620-7100	7100-8900	TOTAL POWER
Open Throttle	110	191.90	1.234	117.1	117.4	117.6	118.9	119.8	121.3	123.3	125.0	125.9	127.2	127.1	123.3	134.2
	100	184.06	1.124	116.8	116.7	116.5	117.2	117.5	118.7	120.4	121.8	123.1	124.2	124.3	120.6	131.6
	90	174.06	1.012	116.2	118.0	116.0	116.8	117.0	118.6	119.1	119.5	120.3	121.8	121.4	118.5	129.8
	80	157.12	0.886	117.6	117.4	117.2	117.9	117.8	118.8	120.1	121.1	122.1	123.8	123.8	121.4	131.4
Part Throttle	110	187.32	1.219	119.0	118.7	118.8	120.0	120.7	122.3	124.4	125.6	127.2	128.8	129.0	125.6	135.6
	105	175.18	1.140	119.6	119.3	119.0	119.6	120.0	121.3	123.5	125.6	126.0	127.8	127.8	124.4	134.8
	100	168.01	1.078	118.2	118.1	118.0	118.8	119.4	120.8	123.0	124.4	125.6	126.6	126.7	124.0	134.0
	90	150.02	0.950	117.9	117.7	117.5	118.4	118.5	120.2	122.3	123.4	125.1	127.4	128.2	126.9	134.0
	80	140.03	0.848	117.1	116.9	116.7	117.2	117.5	118.8	120.7	122.2	124.0	126.1	126.0	123.6	132.8

Table XXXI(a)

ONE-THIRD-OCTAVE BROADBAND SOUND PRESSURE LEVELS (dB 0.0002 DYNES/CM^2)
10 DEGREE CLOSED STATOR

	% Design Speed	$W\sqrt{\theta}/\delta$ lb/sec	Tip Relative Mach No.	Frequency Band (Hz) 560-710	710-890	890-1120	1120-1400	1400-1800	1800-2240	2240-2810	2810-3540	3540-4470	4470-5620	5620-7100	7100-8900
Open Throttle	110	183.88	1.207	115.0	115.5	116.0	117.4	118.4	120.0	123.0	124.9	125.6	125.6	125.3	121.1
	100	170.11	1.084	113.8	114.2	114.4	115.5	116.0	117.3	119.6	121.2	121.6	122.4	122.6	118.9
	80	144.91	0.936	113.7	113.7	114.1	114.4	114.7	115.9	118.0	119.0	119.7	121.6	120.8	118.0
Part Throttle	110	181.67	1.199	116.4	116.4	115.9	117.5	118.0	120.0	122.4	124.1	125.0	125.5	125.4	121.1
	100	164.34	1.064	116.7	116.5	116.3	116.8	117.0	118.1	120.0	121.4	122.3	123.6	123.6	118.9
	80	134.66	0.836	115.1	115.3	114.9	115.4	115.6	116.9	119.2	120.7	122.0	124.3	123.7	121.7

Table XXXI(b)

BROADBAND SOUND POWER LEVELS (dB 10^{-13} WATTS)
10 DEGREE CLOSED STATOR

	% Design Speed	$W\sqrt{\theta}/\delta$ lb/sec	Tip Relative Mach No.	Frequency Band (Hz) 560-710	710-890	890-1120	1120-1400	1400-1800	1800-2240	2240-2810	2810-3540	3540-4470	4470-5620	5620-7100	7100-8900	TOTAL POWER
Open Throttle	110	183.88	1.207	117.3	117.8	118.3	119.9	121.1	122.9	125.8	127.7	128.5	128.7	128.9	125.2	135.9
	100	170.11	1.084	116.1	116.5	116.7	118.0	118.7	120.2	122.4	124.0	124.5	125.5	126.2	123.0	134.3
	80	144.91	0.936	116.0	116.0	116.4	116.9	117.4	118.8	120.8	121.8	122.6	124.7	124.4	122.1	130.7
Part Throttle	110	181.67	1.199	118.7	118.7	118.2	120.0	120.7	122.9	125.2	126.9	127.9	128.6	129.0	125.2	135.7
	100	164.34	1.064	119.0	118.8	118.6	119.3	119.7	121.0	122.8	124.2	125.2	126.7	127.2	124.2	135.2
	80	134.66	0.836	117.4	117.6	117.2	117.9	118.3	119.8	122.0	123.5	124.9	127.4	127.3	125.8	133.3

Table XXXII(a)

ONE-THIRD-OCTAVE BROADBAND SOUND PRESSURE LEVELS (dB 0.0002 DYNES/CM^2)
ROTOR TIP CASING TREATMENT (NOMINAL STATOR SETTING)

				Frequency Band (Hz)											
	% Design Speed	$W\sqrt{\theta}/\delta$ lb/sec	Tip Relative Mach No.	560-710	710-890	890-1120	1120-1400	1400-1800	1800-2240	2240-2810	2810-3540	3540-4470	4470-5620	5620-7100	7100-8900
Open Throttle	110	191.67	1.233	114.5	115.0	115.3	116.5	117.4	119.2	121.4	123.0	123.7	125.0	124.7	119.3
	100	183.55	1.122	114.2	114.1	114.2	114.5	114.6	115.4	117.5	119.0	119.5	120.8	120.6	116.5
	90	172.90	1.010	113.3	113.3	113.0	113.8	113.9	114.4	116.2	117.2	117.9	119.5	118.6	114.7
	80	157.24	0.886	113.5	113.5	113.3	113.9	114.1	114.9	116.5	117.4	118.6	121.2	120.6	117.3
Part Throttle	110	187.95	1.221	115.0	115.2	115.5	117.2	118.7	120.9	123.6	125.7	126.2	126.4	124.9	120.2
	105	182.59	1.165	115.3	115.6	115.5	116.2	116.7	118.3	120.7	123.1	124.7	125.5	124.6	120.5
	100	167.63	1.076	115.6	115.7	115.7	116.5	116.9	118.1	120.2	122.2	123.5	124.6	124.2	121.0
	90	156.88	0.968	114.5	114.5	114.4	115.0	115.3	116.4	118.6	120.3	121.6	123.9	123.9	121.2
	80	140.39	0.849	113.6	113.7	113.6	114.3	114.4	115.6	117.8	119.4	120.4	123.3	122.8	120.0

Table XXXII(b)

BROADBAND SOUND POWER LEVELS (dB 10^{-13} WATTS)
ROTOR TIP CASING TREATMENT (NOMINAL STATOR SETTING)

				Frequency Band (Hz)												
	% Design Speed	$W\sqrt{\theta}/\delta$ lb/sec	Tip Relative Mach No.	560-710	710-890	890-1120	1120-1400	1400-1800	1800-2240	2240-2810	2810-3540	3540-4470	4470-5620	5620-7100	7100-8900	TOTAL POWER
Open Throttle	110	191.67	1.233	116.8	117.3	117.6	119.0	120.1	122.1	124.2	125.8	126.6	128.1	128.3	123.4	135.0
	100	183.55	1.122	116.5	116.4	116.5	117.0	117.3	118.3	120.3	121.8	122.4	123.9	124.2	120.6	131.4
	90	172.90	1.010	115.6	115.6	115.3	116.3	116.6	117.3	119.0	120.0	120.8	122.6	122.2	118.8	129.8
	80	157.24	0.886	115.8	115.8	115.6	116.4	116.8	117.8	119.3	120.2	121.5	124.3	124.2	121.4	131.0
Part Throttle	110	187.95	1.221	117.3	117.5	117.8	119.7	121.4	123.8	126.4	128.5	129.1	129.5	128.5	124.3	136.5
	105	182.59	1.165	117.6	117.9	117.8	118.7	119.4	121.2	123.5	125.9	127.6	128.6	128.2	124.6	135.2
	100	167.63	1.076	117.9	118.0	118.0	119.0	119.6	121.0	123.0	125.0	126.4	127.7	127.8	125.1	134.9
	90	156.88	0.968	116.8	116.8	116.7	117.5	118.0	119.3	121.4	123.1	124.5	127.0	127.5	125.3	133.8
	80	140.39	0.849	115.9	116.0	115.9	116.8	117.1	118.5	120.6	122.2	123.3	126.4	126.4	124.1	132.6

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